AT WHAT PRICE HIGHER EDUCATION IN AFRICA?

A CASE STUDY OF HIGHER EDUCATION SYSTEMS IN CAMEROON

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At what price higher education in Africa?

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At what price higher education in Africa?

A case study of higher education systems in Cameroon

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DEDICATION.

To

Our wives Kathleen and Lanita,

our students

and the youth of all developing countries.

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PREFACE

Higher Education in Africa - its rationale, its organisation and its cost - has become an increasingly complex, emotive and controversial issue involving, as it does, Government departments, international agencies and the lay public in the countries concerned.

Papers have been written to argue that in cost/benefit terms, higher education in Africa has been, and continues to be, seen as of doubtful value for development and hence an injudicious use of scarce resources.

Equally scholarly papers have been written arguing the converse proposition that the advantages of higher education are not quantifiable in cost/benefit terms. Proponents of this view argue that the financial burden of Higher Education to African countries has to be borne in the interests of nation building. If such sacrifices have worked for developed countries then they will work for African countries.

These latter arguments have enabled many African Governments up to now to preserve the inherited colonial university system in their countries and indeed to expand it. No questioning of the policy of academic higher education has been permitted.

Today, however, more and more people are taking issue with this standpoint and, while accepting that this third tier of the educational system is here to stay, are asking ' At what price ?'.

The higher education system in Cameroon is similar to that found in many other francophone countries in Africa. It comprises three main categories:

(1) the University of Yaounde with unrestricted entry to all school leavers who have passed the Baccalaureat or GCE 'A' level.

(2) the profession-orientated University Centres which contrast sharply with the main university in two main particulars - selectivity of entry and consequent smaller size.

(3) students who are given state scholarship to pursue undergraduate and postgraduate studies abroad.

Our analyses reveal that, if the present system is maintained with no changes, it will be a disaster for Cameroon.

We, as authors of this book, share the view that Higher Education is essential to African countries. However, we should like to see the development of a coherent philosophy for African higher education where tertiary level institutions would be

more tailored to national need; where their administration would be modern and efficient; where results will justify our faith.

This book sets out to evaluate higher education in one country in the hope that lessons can be learned which will be of benefit to other African countries.

We are conscious of not having enough appropriate data in some instances but are convinced that the breadth of types of institutions covered provides a sufficiently solid basis to draw valid conclusion.

Part 1 - 'Diagnosis' summarises what is not well with the present system in all its three categories. In the case of the University of Yaounde, the prediction of a very gloomy future for university staff, administration and students is supported by statistics of past and present performance.

Part 2 - 'Quest for solutions' describes how certain pressing problems have been addressed. Clearly, there was no master plan at the outset. Although it was recognised that long term changes had to be made, expediency demanded certain immediate action. Some of the first results of strategies adopted in the University of Yaounde are summarised.

Part 3 - 'Future orientation of Higher Education', hopes and aspirations are brought into focus in proposals for future orientation of higher education in Cameroon and its management. A case is made for sound managerial practices with emphasis on innovation in the education system, relevance to Cameroon and continuing evaluation. An evaluation questionnaire incorporating these principles is proposed. This together with the schema of interacting factors - the education, governmental, market forces triangle - form the basis of our proposal for formulating new policies for African Universities.

It is recognised that the implementation of such proposals for the future orientation of African universities will take political courage and determination. Formulating new policies in education is the collective responsibility of Government and the governed.

It is hoped that our detailed presentation of the existing system will enable the unbiased reader to judge objectively whether the impressive efforts of the State in the domain of Higher Education up to the present can be counted as a resounding success or whether it is now time to change.

PART ONE

EVALUATION OF THE HIGHER EDUCATION SYSTEM

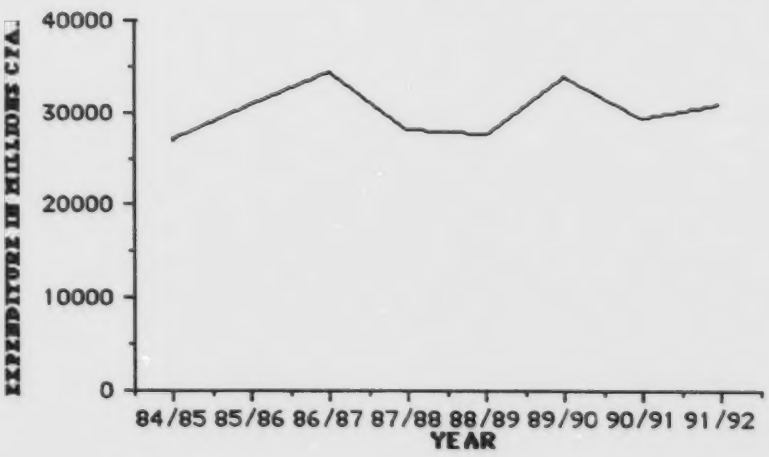
Introduction

The "Higher Education System" in Cameroon is taken to mean institutions that engage in the education of students who have completed high school and passed the General Certificate of Education Advanced Level (GCE 'AL') and the Baccalaureat (BAC) examinations of the anglophone and french speaking parts of Cameroon, respectively. When contemplating future orientation of the educational system, one needs to evaluate, using objective criteria - qualitative as well as quantitative - this tertiary education system within the context of the Cameroon Government's official policy. These institutions are made up not only of national institutions, which are exclusively State owned, but also Institutes of Higher Learning outside of Cameroon, particularly in Europe, North America, Asia and Africa.

The Cameroon Government has directly contributed a significant proportion of its national budget to tertiary education. The scale of this contribution is depicted in Figure 1.

FIGURE 1

TOTAL EXPENDITURE ON HIGHER EDUCATION.



The disbursements in the last decade have significantly increased over those of the previous decade, indicating the importance which the Government attaches to education in general, and higher education in particular. In these hard times, every effort should be made to maximize the benefits derived from every investment. It is with this in mind that this study was undertaken to evaluate the Higher Education System in which large investments have been made. It was not practicable to evaluate Universities and other institutions of higher learning outside of Cameroon. This lacuna was in part compensated for by looking at some of the outcome indices, notably appropriateness of the graduates' training to the needs of the local Market Forces, and performance in areas of training. These provided worthwhile information necessary to formulate new policies on the future orientation of higher education.

Within Cameroon, the institutions of higher learning that were evaluated comprised the following:

The University of Yaounde
The Douala University Centre specializing in Business Studies
The Dschang University Centre specializing in Agriculture
The Ngaoundere University Centre specializing inAgro-industry
The Buea University Centre specializing in training Translators and Interpreters
National Higher School of Public Works
National Higher School of Posts and Telecommunications
The School of Youth and Sports

These institutes account for more than 80% of the student numbers enrolled in higher education. We did not evaluate two other institutions (The Military Academy, The School for the training of Magistrates and Administrators) in part because the numbers of students involved were very small. We believe that the wide spectrum and numbers of institutions covered by this study have provided results which could be of interest to a large number of African countries. The data collected at the various institutions concerned was based on a detailed questionnaire which was designed to elicit information on the objectives of the said institutions, their resources, teaching and administrative staff, students, programmes and infrastructure, and outcome indices of the educational system. The questionnaire is presented in Appendix 1. The study was undertaken on site at each institution by trained evaluators, with the collaboration of the staff of the institution concerned. It was, however, not possible to obtain accurate and complete data on every item in the questionnaire due, largely, to the absence of education management information systems in the institutions covered.

Chapter One

UNIVERSITY OF YAOUNDE

The evaluation focuses on the period between the 1980/81 and 1989/90 academic years. The 1980/81 lower limit was chosen for several reasons:

1. hard data is available for this period on parameters such as enrolment of students, budget, detailed success and failure rates in the various establishments, etc.

2. preliminary analysis of data on student enrolment shows that the period of phenomenal growth is limited to this decade.

3. again, analysis of available data indicate that the University's capacity did not begin to be stretched to its limits until the 1980's.

4. it was not until the 1980's that it was found necessary to implement special measures to cope with unemployed University graduates by recruiting them into government service.

5. the slump in the job market for graduates of the professional schools did not occur until after the onset of the economic crisis in the latter half on the 1980's.

The University of Yaounde was created in 1962, after Independence, to meet the immediate needs of the nation, particularly in the areas of public administration and the teaching profession. At that time it was named the Federal University of Cameroon. The Faculty of Law and Economics and the Higher School for teacher training were the first institutions within this University. Later on the Faculties of Arts and Science and profession-oriented schools were opened.

The current structure of learning in the University is hierarchical, with a degree at the top and individual courses providing the elemental building blocks. These blocks, however, may only be put together to build a degree programme in a determined time course. The individual years of study are not ends in themselves as no determinable marketable skills are acquired, particularly in the faculties. The individual years of study are but a means to the degree. Inherent in this is the tacit admission that a degree programme is the only way in which the University can provide useful and meaningful instruction. There is at the moment no need to look towards the University to acquire a specific skill, or group of skills which do not constitute an entire degree programme. The University is thus totally incapacitated with regard to providing job skills to non-degree students, and continuing education to graduates and non graduates.

In the presentation of the results of our studies which follows, each year refers not to a calendar year but to the corresponding academic year. Thus, 1985 refers to the 1985/86 academic year. The exception is where degrees are concerned. Degrees awarded at the end of the 1985/86 academic year, for example, are shown under

1986. On account of the gloomy picture which the University of Yaounde paints, we have presented a number of scenarios, answers to a series of "what if" situations based on current trends, to drive home the essential lessons to be learnt. It is recognized that it is not strictly rigorous scientifically to extrapolate to cover a period of the same duration as that for which the data have been collected. Trends should be extended to cover only a fraction (typically 10 - 25 %) of the length of the period over which the trends have been established. This constraint notwithstanding, the importance of the insight provided by these scenarios far outweighs the effect of any inaccuracies inherent in the data upon which the scenarios are based. For reasons of facilitating the presentation of data, projected values have been rounded to the nearest million for financial calculations, to the nearest hundred for student numbers, and to the nearest ten for numbers of academic staff.

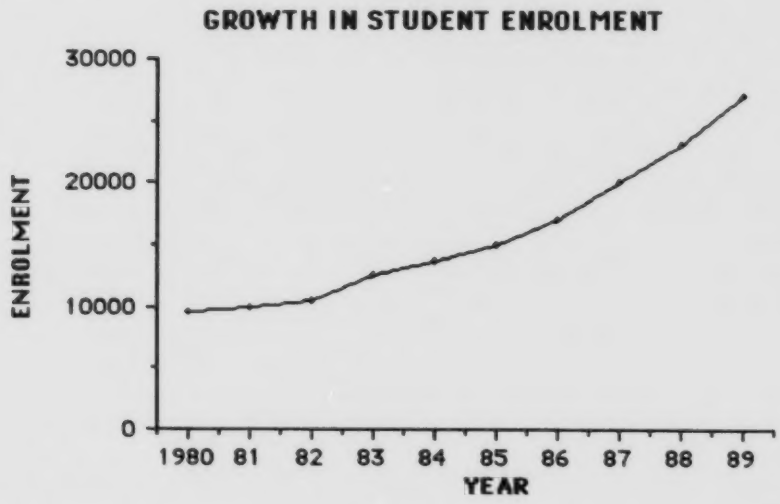
DATA ON STUDENTS.

Student Enrolment.

The number of students enrolled in the University stood at 9,562 in 1980/81 academic year. This figure rose to 13,496 in 1984 and 27,501 in 1989. Thus, whereas it took the University almost twenty years, since its creation in 1962, to reach the ten thousand enrolment landmark (in 1981), it required only an additional six years to reach 20,000 and only three years thereafter to attain 30,000. This alarming rate of growth in the latter part of the eighties averages an annual growth rate of 13.19%.

Figure 2 shows a classic exponential relation between student numbers and time, underscoring the phenomenal growth in student population over this decade.

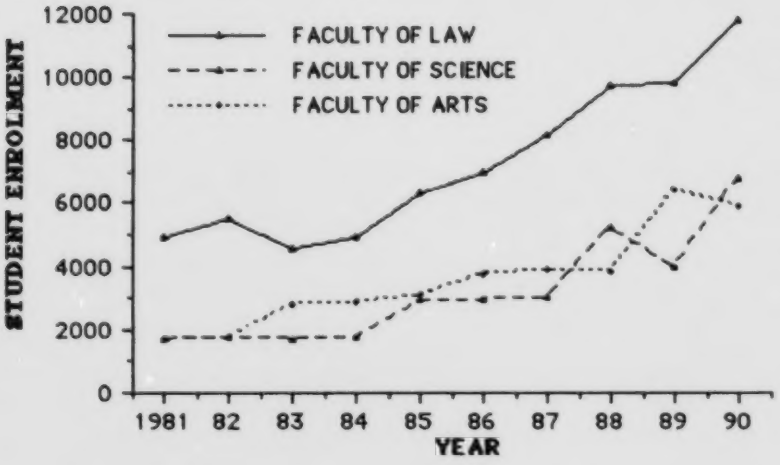
FIGURE 2



A breakdown of this is depicted in Figures 3 & 4, where-in the data for the Faculties and the profession-oriented schools are plotted separately.

FIGURE 3.

GROWTH OF STUDENT ENROLMENT IN THE FACULTIES.

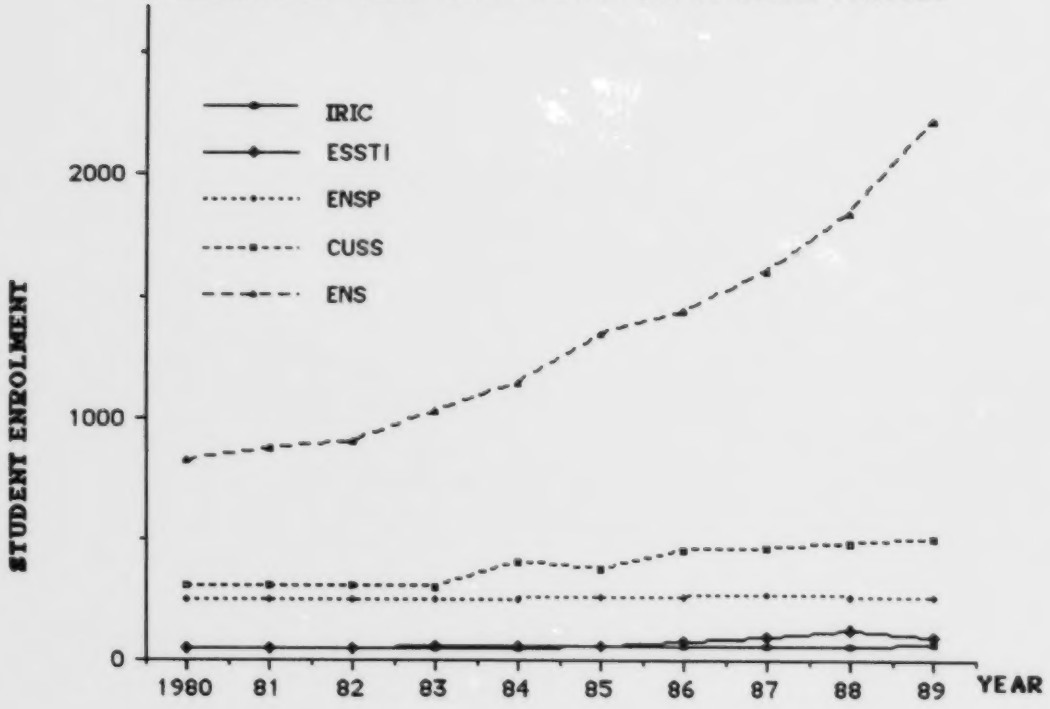


The generally rapid rise in student numbers in the Faculties over this period contrasts sharply with what is obtained in the Schools where the student population does not for the most part vary much over the same period, except in the Higher School for Teacher training (ENS) where the 'Faculty phenomenon' is repeated. As expected, the growth pattern of the student population for the entire University is greatly influenced by enrolment in three of the eight institutions in the system - the Faculties, with an unrestricted entry policy -; they contributed a disproportionate 88% to the total in 1989.

In the profession-oriented schools by contrast, with the exception of the Higher School for Teacher training (ENS), the growth in student population was a modest 7% over the last five years. Entry into these schools is highly selective and the numbers are fixed by Ministerial order. The 12.65% annual growth rate observed in the student population of ENS was due to a deliberate policy of Government to increase the numbers of trained teachers in the primary and secondary schools to meet the nation's demographic growth of around 3% per annum. This was still less than the 14.33% growth rate which was obtained for the same period in the Faculties. The ENS phenomenon illustrates of course that fixing the number of places available does not automatically result in a constrained growth pattern. On the other hand, unconstrained growth will occur when every student who wishes to be admitted for courses and is suitably qualified is enrolled, demonstrated clearly by what has happened in the Faculties.

FIGURE 4

GROWTH OF ENROLMENT IN THE PROFESSIONAL SCHOOLS



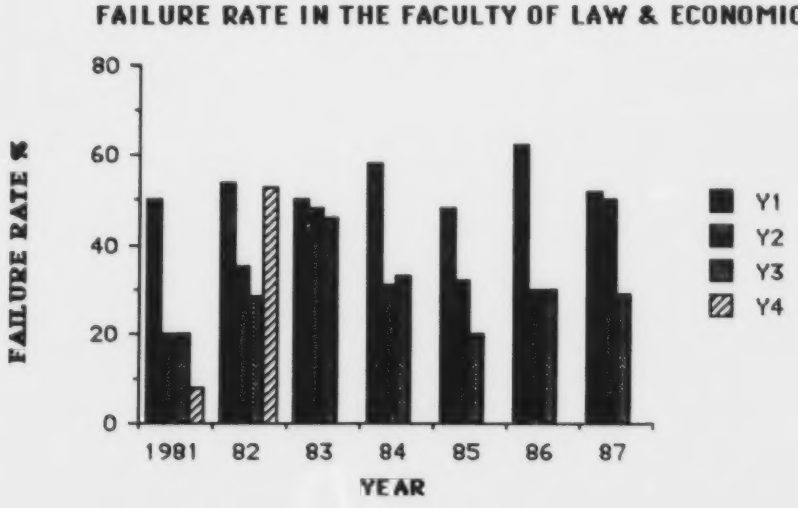
The three-fold increase in student population in the University over the past decade raises certain questions. How much longer can the University of Yaounde cope with this rate of growth? In its laudable effort to provide the best possible education to the largest number of students possible, has the University reached a point where the best education it can possibly provide is compromised by the number of beneficiaries of this education? Are the University's resources, material as well as human, spread too thin for it to produce the type of graduate that it seeks to turn out? These are some of the questions that the next few sections will address.

Academic Performance of Students

Student academic performance was examined separately for each institution for several reasons. Firstly, the nature of programmes and the structuring of the teaching/learning process vary between institutions of this University. Secondly, overall academic performance for the entire University would be dominated by the poor showing in the Faculties, and thus mask the spectacular success scored in the profession-oriented schools as a group. Thirdly, by looking at the institutions individually one would be able to compare performance in groups of institutions which differ in certain important parameters such as size of student population, selection process of entrants, teacher/student ratio, teaching/ learning process et cetera.

Students in the Faculties generally performed poorly throughout the 1980's. This is depicted in Figure 5 for the Faculty of Law and Economics.

FIGURE 5



Figures 6 & 7 show the failure rates over the same period for the Faculties of Arts and Science respectively.

FIGURE 6

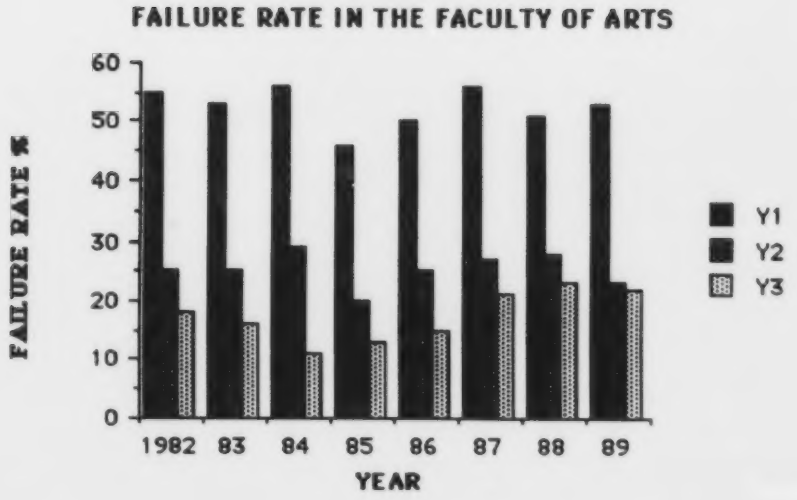
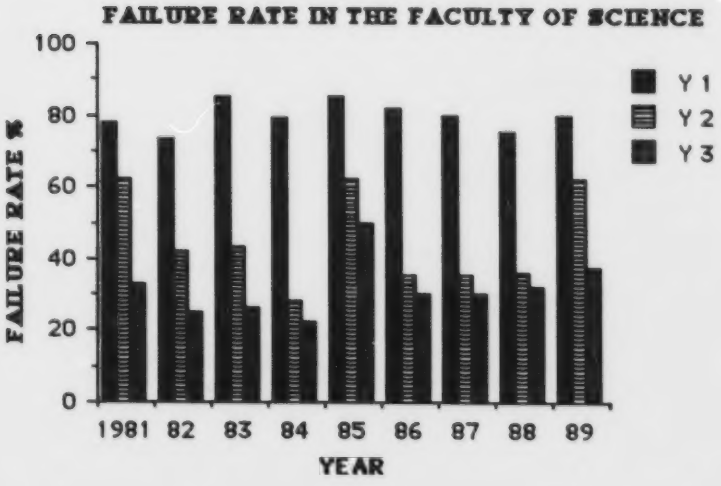


FIGURE 7



In all three Faculties, the figures show failure rates, broken down by class, within each Faculty. There is a consistent pattern of alarming failure rates (50% and above) in the first year of studies, followed by appreciably lower rates of failure in the subsequent years of the course. The exceptions were in 1982 and 1983, when the students in their final year of studies in the Faculty of Law and Economics performed just as dismally as their first year counterparts. It should be noted that until 1982, the first degree courses in this Faculty lasted four years; thereafter the duration has been three years.

It would therefore appear that the first year in the Faculties serves as a screening process for selecting those students who are best suited to the rigours of academics as found in the University of Yaounde setting. This is not to say that the students who fail are unable to cope with the demands of higher learning in University Institutions. Quite the contrary, as many of those "failures" from the Faculties of this University have gone on to graduate, sometimes with honours, in reputable Universities elsewhere. This apparent paradox is explained later on. Failure rates in the second year are typically half of those of the first year; this downward trend continues in the third year. Thus, each of the years acts as a filter for subsequent years, with the first year constituting the filter with the finest mesh. The alarming failure rates in the first year in all Faculties unquestionably adds appreciably to the overall cost of education in the University of Yaounde, and is as well a major cause of the exponential growth in student population over this decade - the students are permitted to repeat the first year of studies, and if they do fail again may move on to another Faculty to repeat the cycle all over again.

Success in the first year, as stated earlier, appears to be an important indicator of the potential for success in the entire programme. This is best illustrated by the Faculty of Arts where, after the first year, success rates in subsequent years have been no lower than 72% throughout the decade, even as high as 90% in the final year of studies in 1983. Even in the Faculty of Science where failure rates are highest (between 75% and 85% in the first year), students in their final year of studies have consistently achieved a respectable pass rate, ranging from a high of 80% in 1984 to an all time low of 65% in 1989.

By contrast, the failure rates in the profession-oriented schools of the University of Yaounde have been low, less than ten percent in any one year of the 1980's. These schools do not as a rule permit students who have failed the first year of studies to repeat the class. Permission to do so is granted only in exceptional circumstances. It is worth pointing out at this point, that entry into all profession-oriented schools is through a competitive entrance examination of candidates who fulfil the basic entrance requirements. Only about 1.8% to 12% of candidates who write the examinations are admitted; the lowest figure is seen in the School of Medicine. It would not be improbable that the better performance of students in these schools during their course of studies than their counterparts in the Faculties is, at least in part, due to the selectivity of the admission procedure.

Number of degrees awarded by the University

Despite high failure rates in the first year of studies in the Faculties, the numbers of degrees awarded by the University have grown during the past decade. This is shown for the Faculties in Figures 8, 9, & 10, and summarized for the various institutions of the University over three representative periods, in Table 1.

FIGURE 8

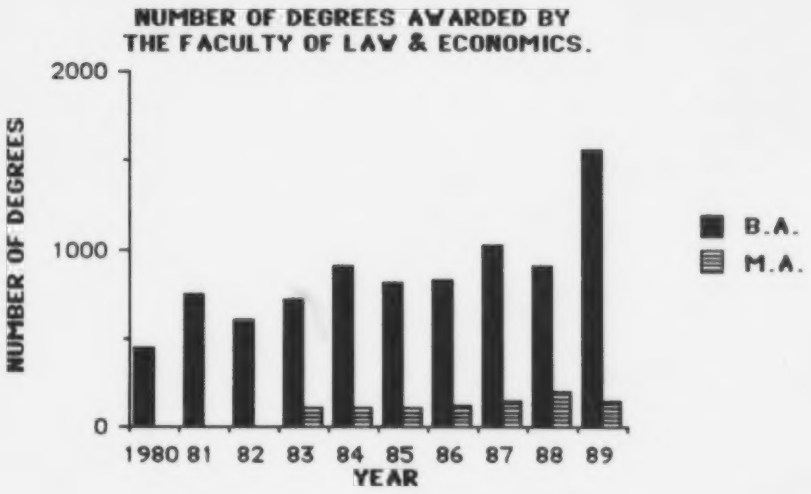


FIGURE 9

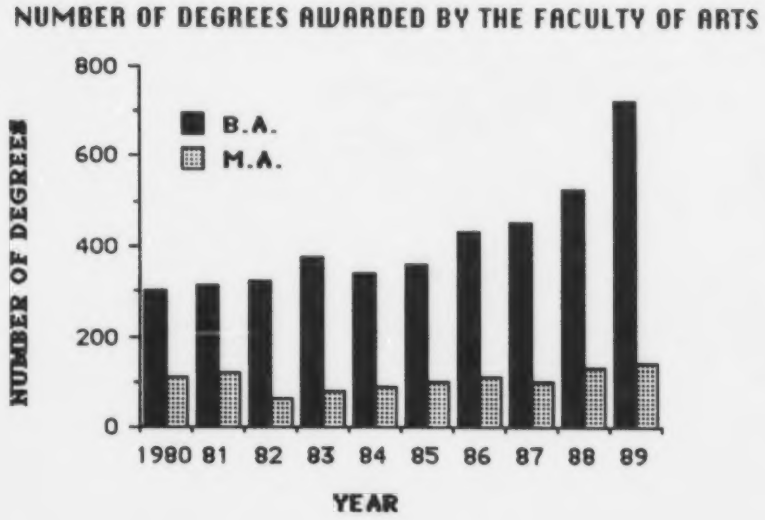


FIGURE 10

NUMBER OF DEGREES AWARDED BY THE FACULTY OF SCIENCE.

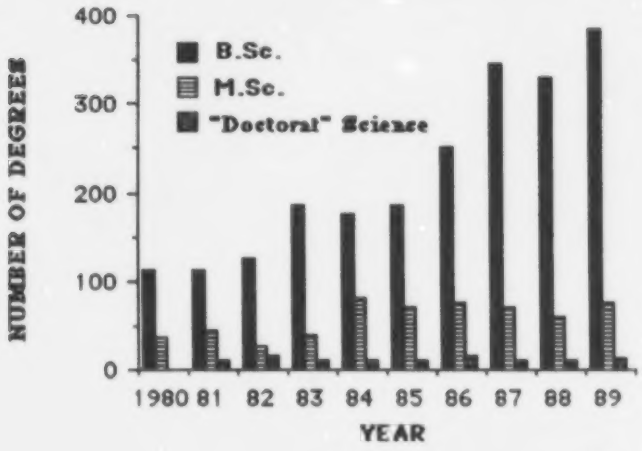


Table 1

DEGREES AWARDED IN THE VARIOUS INSTITUTIONS OF THE UNIVERSITY IN THREE REPRESENTATIVE ACADEMIC YEARS OF THE DECADE.

Year		1980-81	1984-85	1988-89
Institution				
Fac. Law &	B.A.	438	879	1557
Economics.	M.A.		113	125
Fac. Science.	BSc.	114	187	412
	MSc.	41	48	97
Fac. Arts.	B.A.	284	330	697
	M.A.	103	84	124
C.U.S.S.		40	50	60
E.N.S.P.		80	100	81
I.R.I.C.				20
E.S.S.T.I.		20	20	30
E.N.S.		500	700	1100
TOTAL		1620	2507	4303

A detailed breakdown of these figures reveal that the number of awards is dominated by the Faculty of Law and Economics, which alone turns out as many graduates as the rest of the University put together. At the end of the 1988/89 academic year 1,550 degrees were awarded in Law and Economics alone, while 1777 awards were made in the Arts, the Sciences, Medicine, Engineering, Teaching, Journalism and International Relations combined. This situation is typical of the last five years. It may be argued that Cameroon's need for University trained personnel justifies this level of graduate production. It cannot, by any stretch of the imagination, be argued that the broken down needs justify the heavy skew in favour of lawyers and economists. One may be tempted to conclude that the University, cloistered in its ivory tower and removed from reality, perpetuates programmes and the production of graduates in numbers and in skill types which bear little or no relationship to the nation's manpower needs.

Another important piece of information that may be deduced from the above data is that the rate at which new students enrol for courses in the University (4,000 - 10,000 per annum between 1984 and 1989), exceeds that at which they graduate from the University. Although some students leave through expulsion, and others by dropping out for various reasons, graduation remains the major portal of exit. This has had an important effect on mean cycle cost time of graduates from the Faculties as we shall see. It has, as well, played an important role in the startling growth of student population over this period - this phenomenon being the combined effect of increasing numbers of new candidates as a result of the nation's demographic growth, and an ever increasing accumulation of students repeating classes. The upshot of all this is that the mean cycle cost time for a *three year* undergraduate course in the Faculty of Arts, Law and Economics, and Science during the first half of the eighties were *7.7, 8.9 and 18.2 years* respectively, giving a mean cycle cost index of 2.57, 2.97 and 6.1 respectively. Contrast these with cycle cost indices which vary between 1.2 and 1.6 in profession-oriented schools of the same University.

DATA ON ACADEMIC STAFF

Growth in the number of academic staff

The numbers of teaching staff have increased modestly but steadily over the past decade.The numbers of staff in the various institutions at the beginning, middle and end of the past decade is presented in Table 2.

Table 2.

NUMBERS OF ACADEMIC STAFF BY FACULTY/INSTITUTION FOR THREE YEARS OF THE DECADE.

Year	1980-81	1984-85	1989-90
Institution			
Fac. Law &Econ.	60	77	101
Fac. Science	101	137	180
Fac. Arts.	99	132	124
E.N.S.	67	85	118
C.U.S.S.	42	64	107
E.N.S.P.	47	53	61
ESSTI	9	7	15
IRIC	5	5	14
TOTAL.	**430**	**560**	**741**

This information is broken down by type of institution and plotted for the Faculties and Professional Schools in Figures 11 & 12 respectively.

FIGURE 11.

GROWTH IN NUMBERS OF ACADEMIC STAFF IN THE FACULTIES

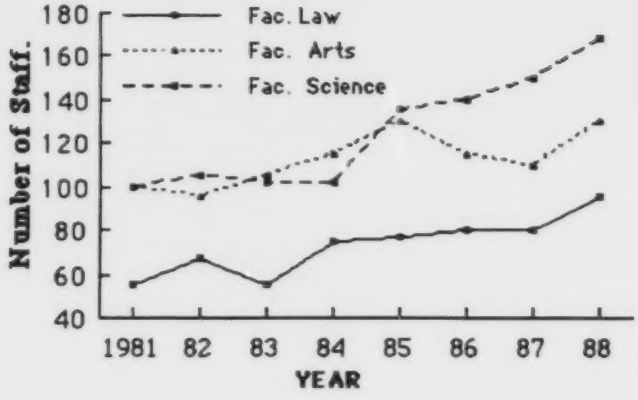
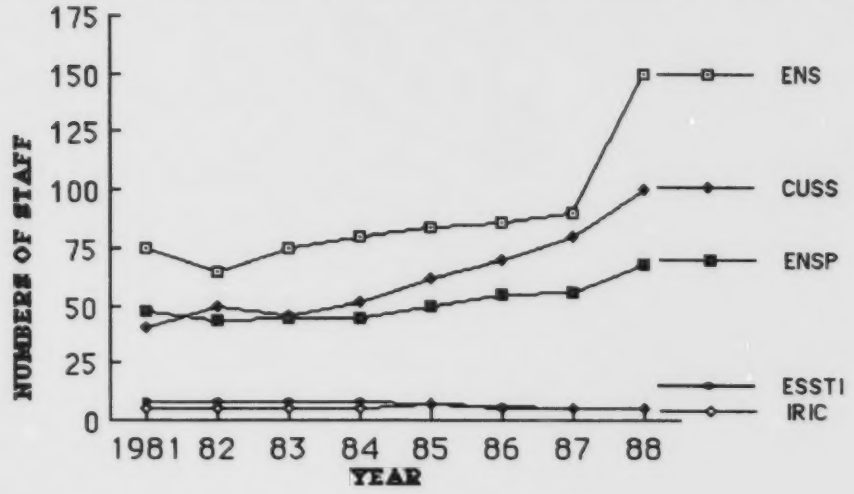


FIGURE 12

GROWTH IN NUMBERS OF ACADEMIC STAFF IN THE PROFESSIONAL SCHOOLS



Full time academic staff grew in numbers from 430 in 1980 to 741 in 1989, the overall growth being a modest 172% over the decade - averaging 26.4% annually over the past five years. A few institutions have actually shown a decrease in the numbers of teaching staff at some point in the decade. The Faculty of Arts showed a drop in 1987, and the Polytechnic Engineering School a decline in 1988. These decreases are important, if for no other reason but for the fact that they constitute one of two categories of data that show negative growth rates during any part of the period of study. The other category, discussed in a later section, is the University's budget.

Student/Teacher ratios

Total numbers of academic staff in an institution do not , by themselves, help in the evaluation of the efficacy of the inputs/processes in the learning system of that institution. A more helpful indicator is the ratio of students to a teacher, which allows one to judge how much time a teacher may reasonably be expected to spend with a student. The data for the Faculties and the Professional Schools are presented in Figures 13 &14 respectively.

FIGURE 13.

STUDENT TEACHER RATIO IN THE FACULTIES

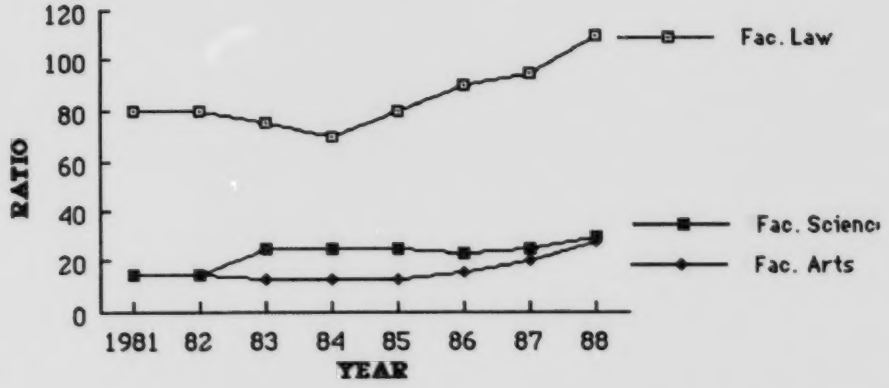
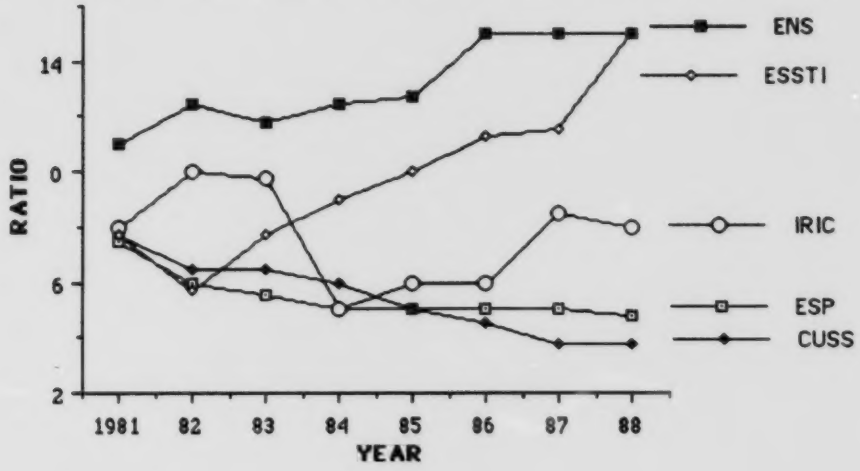


FIGURE 14

STUDENT TEACHER RATIO IN THE PROFESSIONAL SCHOOLS



The increase in the numbers of teaching staff has not kept pace with that of the students. The student-teacher ratios in the Faculties are on the rise. The problem is particularly acute in the Faculty of Law and Economics, where the ratio has been above 70:1 throughout the eighties and currently stands at >120:1. In the other two Faculties, the same upward trend is seen. These figures compared rather unfavorably with those of the Professional Schools. Among these schools, the best ratios are found in the School of Medicine and in the School of Engineering where the student/ teacher ratio today stands at 5:1 and 6.5:1 respectively. In the rest of the schools the ratio is less than 20:1, with a mean of 15:1. There is a correlation

between teacher/student ratios and performance at examinations, the Faculties with the highest ratios showing the highest failure rates in contrast to that obtained in profession-oriented schools. The largest classes in the Faculties are the first year, with the highest student/teacher ratio. It is noteworthy that the most alarming failure rates are recorded in the first year of studies. Obviously, this is one of the important input variables which bears on the quality of the educational system.

Career advancement of academic staff

University academic staff have not fared particularly well in terms of career advancement. Emphasis is placed on the word "career". Nominations to positions outside of the world of academia, of which University lecturers have had their share, are not the issue here. First of all, by their very nature these calls to duty (political for the most part) cannot be factored into career plans in a predictable way as, say, promotion from one to another academic rank. Secondly, they tend to detract from, rather than contribute to, advancement along strictly academic lines. Thirdly, such appointments do not affect the vast majority of teachers. For them, promotion remains the major form of recognition of a job well done.

The distribution of academic staff by rank is shown in Table 3.

Table 3.

GROWTH OF NUMBER OF STAFF OF PROFESSORIAL RANK.

Year	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Professors	48	45	45	45	43	43	42
Associate Professors	37	39	42	48	54	54	60

Of the 654 teaching staff in 1987, over 80% of them were either lecturers ("Assistant") or senior lecturers ("Charge de Cours"). This situation has not changed much over the years. Associate Professors and Professors have remained a minority. Promotions to higher ranks are based on clearly defined criteria: Teaching skills and contribution, research activities and publications in international and other peer reviewed journals, innovation recognized by patents, contribution to nation building. The Promotions Board usually seeks the expert opinion of professors from other universities in Africa, Europe, North America and Asia for all promotions to the rank of either Associate Professor or Professor. For aspirants to make progress under these rigorous conditions, they have to have not only the facilities and funds but also the time to carry out good research. The exponential growth in student numbers in recent times do not make things any easier for these staff who are already burdened with the daily demands (sometimes unpredictable) of life in a developing country.

DATA ON MATERIALS AND OTHER INPUT VARIABLES IN THE LEARNING SYSTEM

Teaching materials and processes

The learning process in the Faculties is teacher-centred, particularly in the Faculty of Law and Economics, with the blackboard and chalk being the main teaching aids. Lectures form the bulk of the teaching process. Tutorials, although an important component of the official instructional process, do not hold for the most part because of lack of infrastructure facilities, or when they do hold are inadequate because the tutorial groups are too large for effective teacher-student interaction (greater than 60 students per group). This subject is dealt with in more detail later on. Practical learning sessions in the laboratories of the Faculty of Science have had to be curtailed over the years for the same reasons.

Although there is a reasonable good stock of books in the library, the library sitting space is too small to accommodate many readers at the same time; there are less than 600 sitting spaces for over 25,000 potential readers in the Faculties. Current technical or scientific journals are conspicuously absent, and so are self-instruction teaching aids. Bookshops are sparsely stocked and students are not encouraged to seek information for themselves by carrying out assignments. It is not surprising that hand outs from teachers form the major source of information. The situation in the profession-oriented schools is quite the reverse. The learning process is a teacher-support system in most of them, evidenced by the large numbers of assignments, seminars and practicals, especially in the School of Medicine. The Libraries are better stocked with textbooks and current periodicals; CD-ROMs are available in the library of the School of Medicine. Teaching aids such as overhead projectors, slides for projection, videotapes and films are in common usage. It has often been said that Cameroon is a land of contrasts; it would seem this is also reflected in its educational system - even within the same University.

Infrastructure

During the decade 1980 - 1990 there has been a major effort to improve the infrastructure of the University of Yaounde. New constructions during this period were :

- the computer centre
- the main university restaurant
- the University library (yet to be opened)
- the extensions to the School of Engineering and the School of Mass Communication
- five new lecture theatres with a total sitting capacity of 4,000 places
- the new university sporting complex
- three new buildings with tutorial rooms and offices for academic staff in the Faculty of Law and Economics, as well as a new library for this Faculty

Unfortunately, the number of students tripled over this period, increasing from 9,560 to 27,501, rendering totally inadequate these increases in the infrastructure. Table 4 provides data on the infrastructure of the Faculties.
Major consequences of such inadequacies are illustrated by the Faculty of Science. This Faculty had, in 1980, an enrolment of 1,597 students. At that time, the structural facilities available were:-

> Five lecture theatres each with a sitting capacity of 250 places, one with 200 places and two with 100 places.
> In addition, there were 10 smaller rooms with capacities varying from 19 to 50 places. Some of these smaller rooms were used for postgraduate courses where the numbers of students enrolled were small.
> This Faculty had 18 laboratories each with approximately 20 working places.

At the end of the decade the only additions to the above are two lecture theatres of 500 and 1000 sitting places respectively. In the meantime, student numbers have risen from 1,597 to 6,775.

Table 4

DATA ON INFRASTRUCTURE IN THE FACULTIES.

Institution	Amphitheatres		Tutorial Rooms	Teaching labs	Other structures
	Num. of Amphis	Num. of places			
Fac. Law & Econ.	2	1000	8 rooms of 50 seats in bench form		
	1	700			
	1	300			
Total Enrolment 11500 students	(A1) 1	160			
	(A2) 1	120	9 rooms of 60 seats in metal and plastic		
	(A3) 1	120			
	(A4) 1	120			
	(A5) 1	120			
1989 - 1990					
Fac. of Arts	3				2 lecture rooms 1 Auditorium 1 Map room 1 Language Laboratory 1 laboratory for geomorphology.
Fac. Science	1	1000	2 of 48 seats	11 of 20 seats	
	2	500	1 of 58 seats	7 of 25 seats	
	1	350	2 of 24 seats	1 of 50 seats.	
	1	250	1 of 19 seats		
	1	200	4 of 50 seats		
	2	100			

Certain problems have resulted from this failure to provide additional infrastructure to match the rate of increase in the number of students enrolled. Examples of these are:

Formal lectures: The infrastructure for formal lectures was sufficient for the number of students enrolled in this faculty until 1987. Thereafter, enormous problems were encountered. For example, in the first year of the 'Natural Sciences' degree programme, there were 2,000 students registered by the year 1988, at which time there was no amphitheater large enough to accommodate all of them at one sitting. The largest amphitheaters available elsewhere had a sitting capacity of 1,000 places. It was not uncommon to find students sleeping in lecture theatres at night in order to assure a place in the hall for the following day. This might speak well of the thirst for knowledge of these young Cameroonians, but can hardly be recommended to their not so sturdy, less fortunate compatriots of both sexes. It was not an unusual sight to see students standing by windows and doors outside the amphitheaters and also in passage ways within, in order to follow three hour lectures. One shudders to think what would have happened to some of them in an emergency situation, such as a fire alert, in their headlong dash to safety. At one point, the university authorities did consider setting up loud speakers outside the amphitheaters, and indeed to hold

these lectures in an open air theater in the grounds of the Faculty of Arts. These measures might have been better suited to an audience attending a rally, a musical concert or a play, but could hardly be considered ideal for undergraduate lectures.

The 13 rooms assigned to tutorials/seminars have a sitting capacity of 421. Each week a maximum of thirty sessions can be held (5 per day for a 6 day working week). Table 5 shows the evolution, over the decade, of the situation with regard to seminars in the Faculty of Science.

Table 5

COVERAGE FOR PRACTICALS.

Year	Number of Students	Number of sessions required	Number of sessions possible	Coverage %
1980-81	1597	199	315	100
1981-82	1627	203	315	100
1982-83	2227	278	315	100
1983-84	2929	365	315	85
1984-85	3263	408	315	77
1985-86	3416	427	315	74
1986-87	3936	492	315	64
1987-88	4885	610	315	52
1988-89	6000	750	315	42
1989-90	6775	847	315	37

Although it was possible to assure 100% coverage of planned seminars up until the 1982-83 academic year, only 37% of these seminars were indeed covered by the1989-90 academic year at which time the student population had risen to 6,775 (by greater than 400% over the decade).

Another victim of this "population explosion" was the teaching process through practical sessions in the laboratory. Although more teaching staff had been recruited, the growth in student numbers over the same period was too great for planned supervision of all practical sessions to be assured adequately. Table 6 shows the "level" of practical teaching provided using the number of lecturers available compared with the ideal number of lecturers required to supervise these sessions.

Table 6

SUPERVISION OF PRACTICALS.

Year	Number of students	Number of groups (1/15)	Staff teaching practicals	Coverage as % of ideal.
1980-81	1597	106	80	75
1981-82	1627	108	89	82
1982-83	2227	148	86	58
1983-84	2919	194	93	48
1984-85	3263	217	115	53
1985-86	3416	227	117	52
1986-87	3936	262	126	48
1987-88	4885	325	126	39
1988-89	6000	400	143	36
1989-90	6775	451	155	34

Table 7 illustrates the inadequacy of the practical teaching sessions in the 'Natural Sciences' degree programme where the growth in student population was the greatest.

Table 7

COVERAGE OF THE LSN1 PROGRAMME.

Year	Number of students	Number of groups necessary	No. of groups possible between 08.hrs-21 hrs.	% of maximum given.
1980-81	701	46	36	78
1981-82	716	47	36	76
1982-83	1200	80	36	45
1983-84	1572	104	36	35
1984-85	1554	103	36	35
1985-86	1650	110	36	32
1986-87	1934	129	36	28
1987-88	2480	165	36	22

Both tables show a declining percentage of supervision of planned practical teaching sessions over the decade, with only 22% of practicals in the formal programme for the 'Natural Sciences' degree that could be supervised by the end of the decade - obviously a quandary for the academic authorities. Some of the lecturers are obliged to give three times their obligatory teaching hours to help provide even this dismally inadequate cover of the programme.

Another problem posed by the inadequate infrastructure facilities was that teaching staff had difficulties finding office space for preparing lectures or marking papers, or laboratory space for their research activities. The most ingenious of them converted old dilapidated wooden buildings, initially constructed to provide temporary classrooms for secondary schools, into laboratories. The department of organic chemistry was a case in point. One supposes that the highly volatile liquids and gases they used in, or produced from their extraction procedures, may justify use of these buildings dispensable on economic grounds, but hardly the policy to adopt for an institution of higher learning.

All that has been described as sequel to infrastructure constraints in the Faculty of Science applied equally to the other two faculties.

The profession-oriented schools, on the other hand, present a completely different picture. They have adequate infrastructure and staff numbers, and have been able to assure all the planned teaching sessions. Even the Higher School for Teacher training, the least developed of them, has recently completed an impressive modern scientific 'block' for laboratories for all the scientific disciplines.

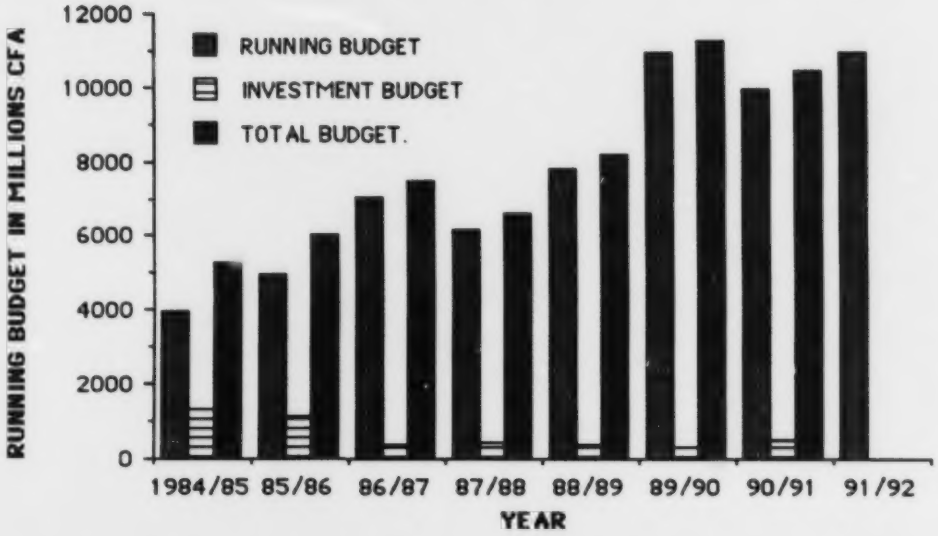
DATA ON FINANCIAL MATTERS

Growth of the University's budget

At the beginning of the decade studied, the budget of the University of Yaounde was 5,986,433,000 FCFA (1980/81). It steadily climbed , except for a dip in 1988/89, reaching 17,377,000,000 FCFA in the 1989/90 fiscal year - a three-fold increase over the decade. This is illustrated in Figure 15.

FIGURE 15

BUDGET ALLOCATIONS OF THE UNIVERSITY OF YAOUNDE

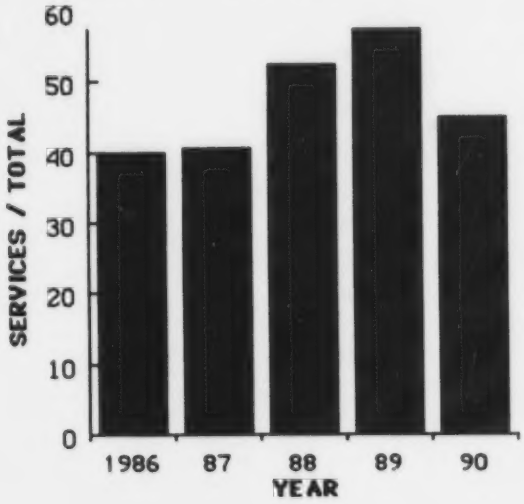


This, at first glance, might suggest a laudable increase in spending on the education of the students. A breakdown of the budget to distinguish between what was spent on student services and what went towards the costs of their academic activities, reveals a completely different picture. The budget for student services, as defined here, includes scholarships, heavily subsidized restaurant services and lodging facilities. Figure 16 is a bar chart of what percentage of the University's budget over the last five years went towards meeting the costs of student services.

It ranged from 40% in 1985/86 to 58.6% in 1988/89, an all time high. At the end of the decade it stood at 44%. Thus, in the last five years an average of 46.8% of the total budget was spent on student services. The budget for scholarships alone shows an average annual increase of 25.23% during the last five years. This is to be contrasted with the 3.31% average annual increase in the total University budget over the same period.

FIGURE 16

RELATION BETWEEN TOTAL BUDGET AND BUDGET FOR STUDENT SERVICES



Despite the impressive increase in the total budget over the decade, the student population explosion has resulted in a steady decrease, over the same period, in the amount spent annually by the State to educate each student.

This information is shown for the faculties in Figure 17 and for the professional schools in Figure 18.

COST TO THE STATE OF EDUCATING A STUDENT IN THE FACULTIES.

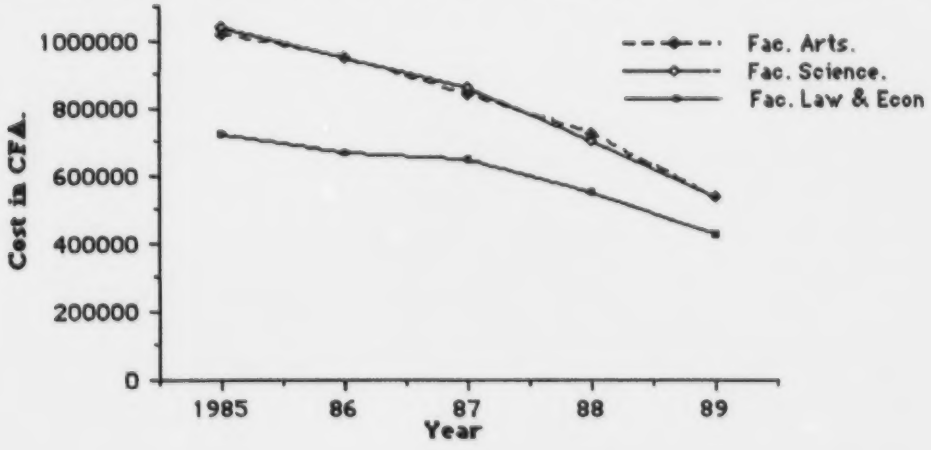
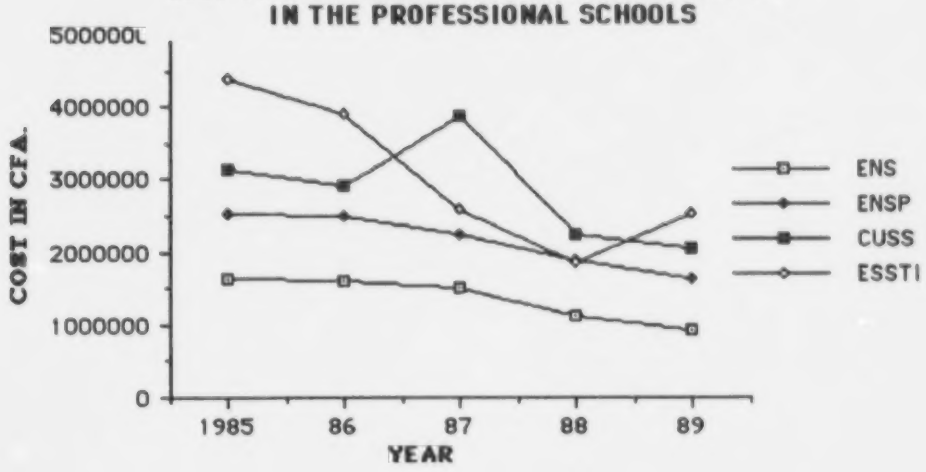


FIGURE 18.

COST TO THE STATE OF EDUCATING A STUDENT IN THE PROFESSIONAL SCHOOLS



The data show that the highest annual investment by the State in educating a single student was 5,000,000 FCFA in the School of Mass Communication in 1985. In the same year, the lowest figure was 710,000 FCFA in the Faculty of Law and Economics. Despite this large disparity between the two institutions, the general trend over the rest of the decade is the same for both of them, as well as for the others - diminishing State subvention for the education of each student.

Management

Evaluation of the constitution and practises of Management in the University of Yaounde has been quite revealing. In the various institutions and in the central administration, there are no staff trained in University Administration. Senior staff are usually appointed to their positions of responsibility without due regard paid to their administrative skills. There are no institutionalized training and evaluation programmes for all types of administrative staff. Promotions are based on considerations other than proven competence. Currently. the central administration is so top heavy, and unfortunately with teaching staff untrained in University administration, that it has become difficult to obtain any coherence in the administration of the University. Further, the ranks of teaching staff have been depleted of sorely needed staff. Decisions are not taken after detailed studies, particularly cost analyses of viable alternatives. For the most part, the chief administrator in the central administration decides vital issues regarding the orientation of the University without due regard to the efficiency of this educational system. More often than not, these decisions are based on political considerations.

The academic administration is better structured than its counterpart - general administration. Perhaps this is due to the traditional independence of academics. There is a well structured system, with Department Boards in the various faculties and schools, moving through the Faculty/School Council, to the University Academic

Board. There is consultation of staff at every level and some modicum of decision taking based on studies of viable alternatives. The collegiate nature of the administration of academic matters has been able to withstand pressures of a political nature.

SCENARIOS

To drive home some of pressing problems in the University of Yaounde which need to be resolved without further delay, we will present here a number of scenarios. Their purpose is to shed light on a number of hypothetical situations in the future. Answers are provided to a number of "what if" situations. The first of such "what if" questions is, understandably, "What would happen if current trends at the University continue ?".

In order to respond to these questions, current trends have been established for a number of control parameters. These are input variables, of a model of the University of Yaounde, which can be manipulated in order to obtain certain desired responses in other (output) variables. It is not surprising that these are also variables used to determine the effectiveness and efficiency of an educational system (1).

Control parameters for this study are;
- The University of Yaounde's annual budget, and a variant of this.
- The annual cost of educating a student.
- Student/Teacher ratio.
- Admissions requirements.

In addition to these major control parameters, a number of other variables have been examined in financial scenarios. Thus, the average sum of a scholarship serves as a control parameter in some scenarios, while registration fees and restaurant charges are used to derive others when dealing with income generation for the University.

Projections of current trends

These projections have been calculated using mean growth rates over the five year period 1985 to 1989. It is this value which has been utilized to compute projections from 1990 through to the year 2000.

1 - *Douglass M, Winham: "Improving the Efficiency of Educational Systems : Indicators of Educational Effectiveness and Efficiency", January 1988.*

Student Enrolment, Staff numbers and Student/Teacher ratios. Projections for 1995 - 2000 .

Student enrolment during the period 1985 to 1989 showed an annual increment of 13.19%. Projections based on this figure indicate that the numbers of students enrolled for studies in the University will rise from the 1989 figure of 27,501 to fifty seven thousand eight hundred in 1995, and reach a staggering total of one hundred and seven thousand five hundred (107,500) by the year 2000, if current trends persist. These projections for the University as a whole have been plotted in Figure 19, and for individual institutions in Figures 20 & 21.

FIGURE 19.

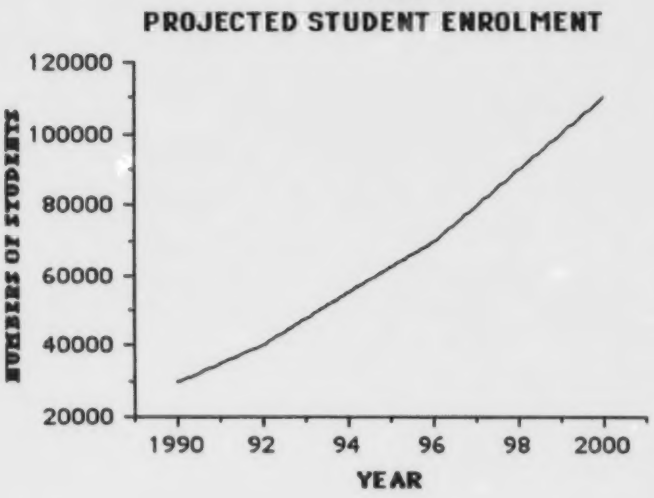


FIGURE 20

PAST AND PREDICTED ENROLMENT IN THE FACULTIES

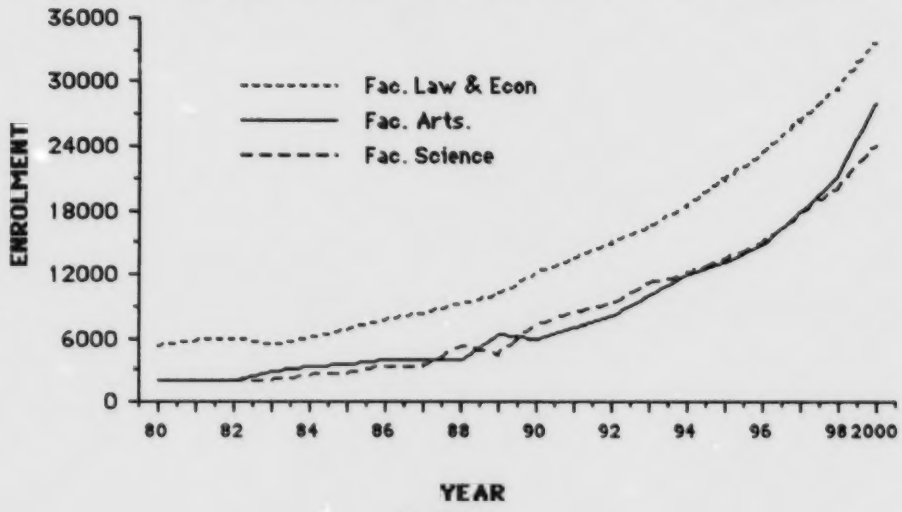
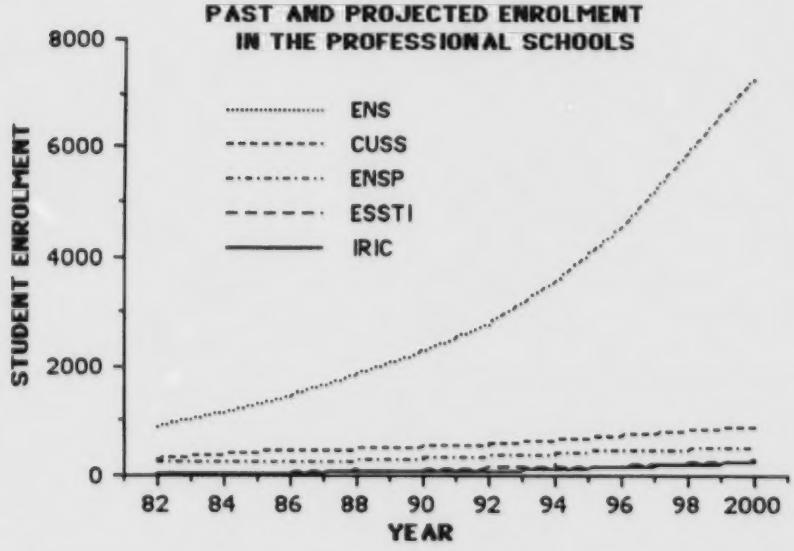


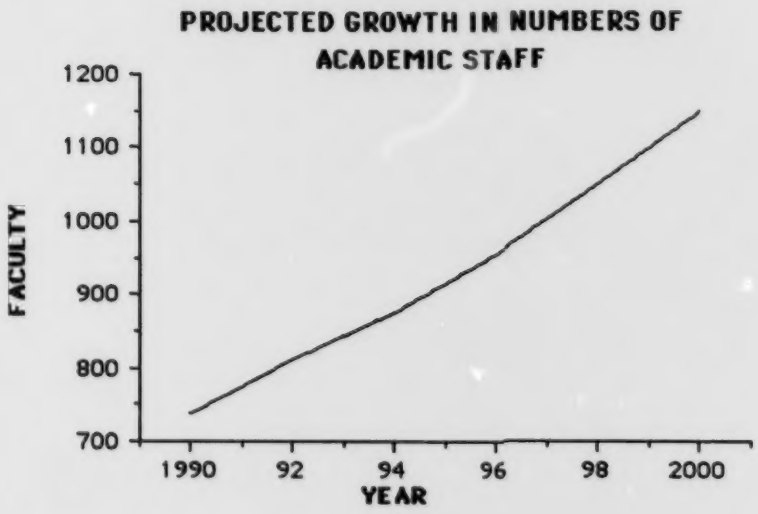
FIGURE 21

PAST AND PROJECTED ENROLMENT IN THE PROFESSIONAL SCHOOLS



Values for the numbers of teaching staff over the same period (based on the current rate of employment and assuming there is no attrition from retirement, resignations and other causes) are shown in Figure 22.

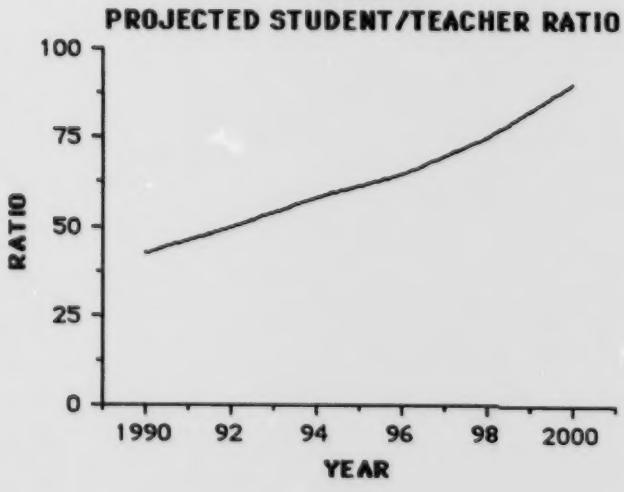
FIGURE 22.



Unfortunately, the rate of growth of teaching staff population will not keep up with that of the student population. This will result in a deteriorating situation with regard to the numbers of students per teacher.

The mean student/teacher ratio for the University as a whole in 1989 was 38.7 to 1. In this scenario, the ratios for 1995 and 2000 are expected to be 63 to 1 and 98 to 1, respectively. For the Faculty of Law and Economics, which has the worst ratio of all the institutions today, the projected state of affairs would be quite untenable. These projections are presented in Figure 23.

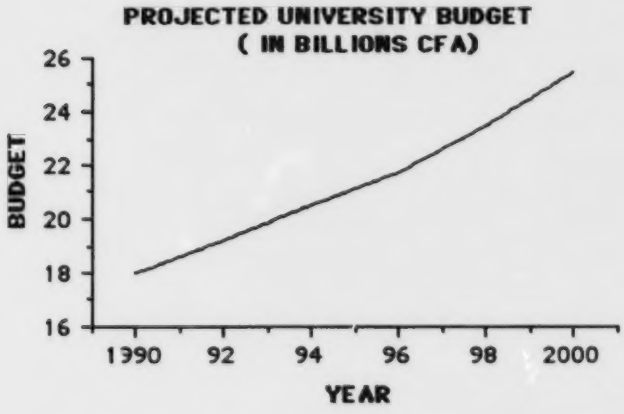
FIGURE 23



University Budget Projections for 1995-2000.

The principle which has been described above has been used to derive values for projections of the University's budget in the coming years. This, of course, assumes that the average annual increase of 3.31% in the past will continue. These projections have been depicted in Figure 24.

FIGURE 24



Absolute values for the middle and end of the current decade for the principal parameters are given in Table 8. and later on, for each of the years, in Table 10 in one of the scenarios.

Table 8.

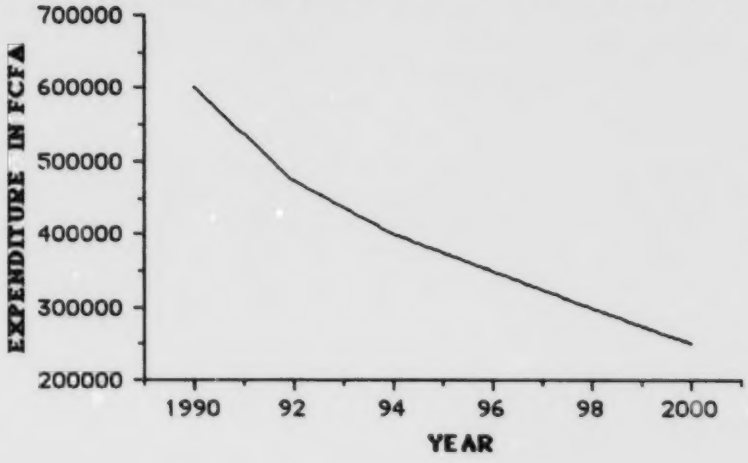
PROJECTIONS ON STAFF, STUDENTS AND BUDGET.

Projected	**1995**	**2000**
Student numbers	57,839	107,469
Budget required ($x10^6$) CFA	36,547	67,906
Staff required	1,493	2,775
Scholarship cost ($x10^6$) CFA	21,424	65,983

The budget is expected to be 21.13 billion francs cfa in 1995 and 24.869 billion francs cfa by the year 2000. Despite these projected increases in the State's investment in the University of Yaounde, the cost of educating each student would have declined from an average of 632,000 francs cfa in 1989 to 231,000 francs cfa by 1995, an interesting paradox (Figure 25).

FIGURE 25

PROJECTED STATE EXPENDITURE/ STUDENT



Scenarios

The following six types of scenarios are presented here:

1. Using projected student enrolment figures, what would be the resources required if certain baseline conditions were to be maintained in the future? The baseline conditions in this scenario are taken to be the annual cost of educating a student, and student/teacher ratio; these have been calculated from data covering the decade 1980-1989. Resource requirements computed from these baseline conditions are the number of academic staff and the budget. In each instance, projections of these resources based on current trends are also made, and the difference between resources needed and projected resources have been calculated. It is realized that the baseline conditions calculated from what was obtained in the 1980-89 decade are far from ideal, in comparison with what is obtained in universities in more developed countries. However, as one predicts that conditions are going to get worse in the University of Yaounde setting if no policy changes are made, it is more appropriate to use values derived from the past (representing achieved levels at some point in the history of this University) to compare with future predictions to drive home the dinning of warning bells.

2. Assuming that the current trends in the growth of resources continue, what ought to be the number of places that the University should allow for student enrolment, if baseline conditions derived from the past decade are to be maintained? This scenario calls for assuring certain standards that had been achieved in the past. The number of available places for each of the coming years is then compared with the predicted numbers of students expected to enrol for studies in each of those years.

3. For a given arbitrary budgetary figure, what would be the number of places for enrolment for studies in the University if the annual cost of educating each student was not to fall below that which had been achieved in the 'best year' of the past decade? Again, this number is compared with the predicted numbers of student enrolments up to the year 2000.

4. How would certain defined changes in enrolment requirements affect the numbers of entrants into the University in the future? Corresponding staff and budgetary requirements are then determined using the base-line conditions described earlier. Comparisons are thereafter made between these values and what would be obtained if no changes in admissions' policy had been made.

The next two types of scenarios are in connection with student scholarships, and possible income generators for the University.

5. If current trends in the amounts spent on student services (including scholarship) persist, what would be the predicted expenditures for the future? How would these compare with the predicted student services budget if, without reducing the numbers of predicted beneficiaries, the amounts given each scholarship holder were revised downwards?

6. How much cost recovery would be achieved if registration fees for students were increased? How much cost recovery would be achieved if restaurant charges for students were revised upwards and paid directly to the University, rather than into the Treasury?

Comments on and conclusions from a study of the scenarios

1. Extrapolations based on the average growth rate in the past decade indicate that student enrolment would climb from the 1989 figure of 27,501 to 57,839 in 1995, reaching 107,469 by the year 2000. Corresponding figures for academic staff are 923 in 1995 and 1,148 for the year 2000. However, if the present <1989/90> staff student ratio were to be maintained, 1,493 teachers would be required by 1995 and 2,775 by the year 2000, giving a shortfall of academic staff of 570 and 1,626 for these respective years (Table 9).

Table 9.
Projections: Staff needs for the University of Yaounde.

Year	Students (a)	Budget (a)	Staff needed. (b)	**Deficit.**
1995	57,839	923	1493	**570**
1996	65,469	964	1690	**726**
1997	74,105	1007	1913	**906**
1998	83,880	1052	2,166	**1,113**
1999	94,945	1,099	2,451	**1,352**
2000	107,469	1,148	2,775	**1,626**

(a) : Based on current trends.
(b) : Projected using 1989/90 Student/Teacher Ratio.

If the best student/teacher ratio in the past decade (that of 1986/87) were used to derive the desired numbers of staff for the years 1995 and 2000, these and their corresponding deficit would be 1974 *(1051)* and 3668 *(2520)* respectively (Table10).

Table 10.
Projections: Staff needs for the University of Yaounde.

YEAR	Students (a)	No. of Staff (a)	Staff needed (b)	**Deficit.**
1995	57,839	923	1,974	**1,051**
1996	65,469	964	2,235	**1,271**
1997	74,105	1,007	2,530	**1,522**
1998	83,880	1,052	2,863	**1,811**
1999	94,945	1,009	3,241	**2,142**
2000	107,469	1,148	3,668	**2,520**

(a) : Based on current trends.
(b) : Projected using 1986/87 Student/Teacher Ratio.

2. With respect to the University budget, again assuming unrestricted entry of students into the University, the budgetary needs using 1989/90 costs would be 36.55 billion francs cfa in 1995 (a deficit of 15.42 billion francs cfa) and 67.91 billion francs cfa in 2000 (a deficit of 43.04 billion francs cfa (Table 11).

Table 11.
Projections: Budget requirements for the University of Yaounde.

YEAR	Students (a)	Budget (a)	Budget needed (b)	**Deficit.**
1995	57,839	21.13×10^9	36.55×10^9	**15.42×10^9**
1996	65,469	21.83×10^9	41.37×10^9	**19.54×10^9**
1997	74,105	22.55×10^9	46.82×10^9	**24.27×10^9**
1998	83,880	23.30×10^9	53.00×10^9	**29.70×10^9**
1999	94,945	24.07×10^9	59.99×10^9	**35.92×10^9**
2000	107,469	24.87×10^9	67.91×10^9	**43.04×10^9**

(a) : Based on current trends.
(b) : Projected using 1989/90 Cost/Student.

These figures would rise considerably if the costs in 1986/87 were used as baseline for calculations. The predicted budget for the years 1995 and 2000 would be 55.70 billion francs cfa and 110.35 billion francs cfa respectively (Table 12).

Table 12.
Projections: Budget requirements for the University of Yaounde.

YEAR	Students (a)	Budget (a)	Budget needed (b)	**Deficit.**
1995	57,839	21.13×10^9	55.70×10^9	**34.57×10^9**
1996	65,469	21.83×10^9	63.05×10^9	**41.22×10^9**
1997	74,105	22.55×10^9	71.37×10^9	**48.82×10^9**
1998	83,880	23.30×10^9	80.78×10^9	**57.48×10^9**
1999	94,945	24.07×10^9	91.44×10^9	**67.37×10^9**
2000	107,469	28.87×10^9	103.50×10^9	**78.63×10^9**

These are quite considerable sums for a developing country with a rather fragile economic base.

Projected budgetary needs for the period, using 1980/81 student costs are shown in (Table 13).

Table 13.
Projections: Budget requirements for the University of Yaounde.

YEAR	Students (a)	Budget (a)	Budget needed (b)	**Deficit.**
1995	57,839	21.13×10^9	36.21×10^9	**15.08×10^9**
1996	65,469	21.83×10^9	40.99×10^9	**19.16×10^9**
1997	74,105	22.55×10^9	46.39×10^9	**23.84×10^9**
1998	83,880	23.30×10^9	52.51×10^9	**29.22×10^9**
1999	94,945	24.07×10^9	59.44×10^9	**35.37×10^9**
2000	107,469	24.87×10^9	67.28×10^9	**42.41×10^9**

(a) : Based on current trends.
(b) : Projected using 1980/81 Cost/Student.

3. If the current trend in the growth of resources continues at its present rate, the projected number of students that could be accommodated **(maintaining today's baseline parameters)** would be 33,440 in the year 1995, and 39,357 in the year 2000. When these figures are compared with the predictions on current trends gives an "over population" of 24,940 and 68,112 for the respective years. If the 1986/87 student teacher ratio were used as an ideal, the number of places that ought to be made available for enrolment for studies should be 21,940 (excess 35,900) in 1995, and 25,822 (excess 81,647) in 2000 (Table 14).

Table 14.
Projections : Number of places available at the University of Yaounde.

YEAR	Budget (a)	No. of Places (b)	Students (a)	**Overpopulation**
1995	21.13×10^9	21,940	57,839	**35,900**
1996	21.83×10^9	22,666	65,469	**42,802**
1997	22.55×10^9	23,417	74,105	**50,688**
1998	23.30×10^9	24,193	83,880	**59,687**
1999	24.07×10^9	24,994	94,945	**69,950**
2000	24.87×10^9	25,822	107,469	**81,647**

Indeed, one would have to de-populate the University by well over 12,000 students between now and 1995 to achieve that year's target. The budget required for each of the years up to the year 2000 is also shown in the table. Corresponding figures for projections made using the 1980/81 and 1989/90 student costs are presented as well in Tables 15 & 16.

Table 15.
Projections: Number of places available at the University of Yaounde.

YEAR	Budget (a)	No. of Places (b)	Students (a)	**Overpopulation**
1995	21.13×10^9	33,750	57,839	**24,089**
1996	21.83×10^9	34,868	65,469	**30,601**
1997	22.55×10^9	36,023	74,105	**38,082**
1998	23.30×10^9	37,216	83,880	**46,664**
1999	24.07×10^9	38,449	94,945	**56,486**
2000	24.87×10^9	39,722	107,469	**67,747**

(a) : Based on current trends.
(b) : Projected using 1980/81 Cost/Student.

TABLE 16
Projections: Number of places available at the University of Yaounde.

YEAR	Budget (a)	No. of Places (b)	Students (a)	**Overpopulation**
1995	21.13×10^9	33,440	57,839	**24,399**
1996	21.83×10^9	34,547	65,469	**30,921**
1997	22.55×10^9	35,692	74,105	**38,413**
1998	23.30×10^9	36,874	83,880	**47,006**
1999	24.07×10^9	38,095	94,945	**56,849**
2000	24.87×10^9	39,357	107,469	**68,112**

(a) : Based on current trends.
(b) : Projected using 1989/90 Cost/Student.

The projected staff needs based on the 1980/81 student/teacher ratio are shown in Table 17.

Table 17.
Projections: Staff needs for the University of Yaounde.

YEAR	Students (a)	No. of Staff (a)	Staff needed (b)	**Deficit.**
1995	57,839	923	2,661	**1,739**
1996	65,469	964	3,013	**2,048**
1997	74,105	1,007	3,410	**2,403**
1998	83,880	1,052	3,860	**2,807**
1999	94,945	1,009	4,369	**3,270**
2000	107,469	1,148	4,945	**3,797**

(a) : Based on current trends.
(b) : Projected using 1980/81 Student /Teacher ratio.

Scholarship allocations: If scholarships continue to be awarded at the same value as in 1989/90, then it would cost 21,426 ($x10^6$) FCFA to provide equivalent scholarships to the 57,839 students expected in 1995, and 65,983 ($x10^6$) FCFA for the 107,469 students anticipated to enrol in 2000. These costs do not allow for any increase in the cost of living.

5. If budgetary allocations are frozen for a number of years at, say, 25.00 billion francs cfa, one can compute the number of places available in the University if the desired goal is to maintain student costs of the years 1989/90 (Table 18), 1986/87 (Table 19) or 1980/81 (Table 20).

Table 18.
Projections: Number of places available at the University of Yaounde.

YEAR	Budget (a)	No. of Places (b)	Students (a)	**Overpopulation**
1995	25.00×10^9	39,565	57,839	**18,274**
1996	25.00×10^9	39,565	65,469	**25,904**
1997	25.00×10^9	39,565	74,105	**34,540**
1998	25.00×10^9	39,565	83,880	**44,315**
1999	25.00×10^9	39,565	94,945	**55,379**
2000	25.00×10^9	39,565	107,469	**67,904**

(a) : Based on current trends.
(b) : Projected using 1989/90 Cost/Student.

Table 19.
Projections: Number of places available at the University of Yaounde.

YEAR	Budget (a)	No. of Places (b)	Students (a)	**Overpopulation**
1995	25.00×10^9	25,959	57,839	**31,881**
1996	25.00×10^9	25,959	65,469	**39,510**
1997	25.00×10^9	25,959	74,105	**48,146**
1998	25.00×10^9	25,959	83,880	**57,921**
1999	25.00×10^9	25,959	94,945	**68,986**
2000	25.00×10^9	25,959	107,469	**81,510**

(a) : Based on current trends.
(b) : Projected using 1986/87 Cost/Student.

Table 20.
Projections: Number of places available at the University of Yaounde.

YEAR	Budget (a)	No. of Places (b)	Students (a)	**Overpopulation**
1995	25.00×10^9	39,932	57,839	**17,907**
1996	25.00×10^9	39,932	65,469	**25,537**
1997	25.00×10^9	39,932	74,105	**34,173**
1998	25.00×10^9	39,932	83,880	**43,948**
1999	25.00×10^9	39,932	94,945	**55,013**
2000	25.00×10^9	39,932	107,469	**67,537**

(a) : Based on current trends.
(b) : Projected using 1986/87 Cost/Student.

The size of the excess population of students anticipated to enrol in the corresponding period is also given.

6. One of the reasons for the rapid rise in student numbers in the University of Yaounde is the increasing numbers of candidates with the requisite Baccalaureat and GCE Advance level certificates. It is interesting to note that although the total numbers of candidates and the overall success rates at these examinations show an exponential growth, the total number of candidates obtaining a mark of 11/20 or more in the Baccalaureat examination, or a total of 7 or more points in the GCE Advanced Level examination remains fairly constant over the same period (Figure 26 a & b).

FIGURE 26 (a)

GROWTH IN NUMBERS OF BACCALAUREAT CANDIDATES

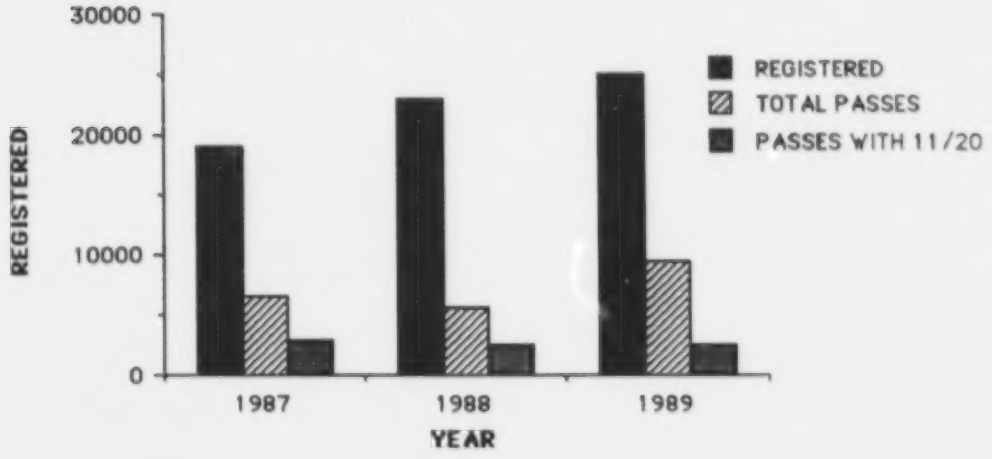
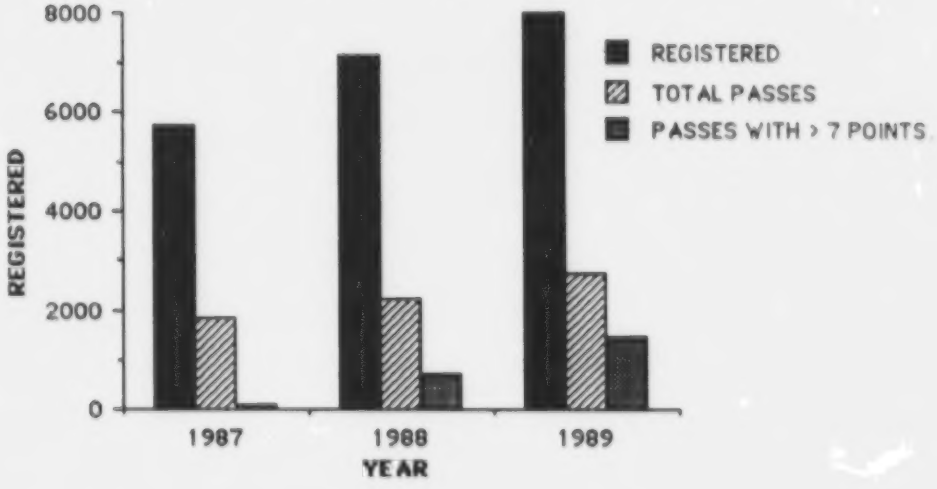


Figure 26 (b).

FIGURE 26 (b)

GROWTH IN NUMBER OF GCE "A" LEVEL CANDIDATES



If such discriminatory criteria for entry into the University were used, one finds that the number of candidates eligible for entry matches that of those who currently graduate from the University of Yaounde. The desired zero-growth of the University student population may thus be achieved. The annual increase in numbers of academic staff will be expected to improve teaching standards and reduce the cycle cost time of graduates from the faculties. The percentage of the global budget spent on students' social services will appreciably diminish in time, freeing financial

resources to invest in worthwhile profession-oriented new courses where the accent will be on the acquisition of marketable skills.

In the 1989/90 academic year, for example, 12,205 students were eligible for entry into the University of Yaounde. Of this number, 6,700 (54.9 %) gained admission. The rest either obtained employment locally or went to institutions of higher learning abroad. Applying the more stringent admissions criteria of 7 points for GCE candidates and 11/20 for Baccalaureat candidates would have resulted in about 4,020 fewer first year students in that year. The corresponding figures for the two previous years would have been 2,840 fewer entrants for 1988/89 and 2,790 fewer freshmen for 1987/88. It is estimated the State would thus have saved 1.847 billion, 1.515 billion, and 1.408 billion francs respectively, on its annual expenditure on students' social services (including scholarships and financial aid) during those years. These savings could have been used to provide better living conditions, library and other learning facilities. Students, as a matter of fact, generally prefer quality education and better living conditions to scholarships.

The important question which will be asked is : "What is expected to be done with the rest of the GCE and Baccalaureat students (indeed the majority) who do not qualify for enrolment in standard (traditional) University degree programmes ? The answer undoubtedly is in the design and adoption of innovative programmes for higher learning which will be implemented not only in the University of Yaounde but also in other institutions of higher learning. These innovative programmes will be characterized by the following :

a) shorter courses than the traditional University progammes
b) courses will be determined by the market needs
c) the main emphasis will be in the acquisition of skills
d) there will be significant inputs by specialists in the Private Sector in these training courses
e) flexibility of the programmes to allow students to move on to acquire higher degrees, or change to other fields of learning

Examples of such courses are : Hotel and Catering, Nursery nursing, Hairdressing and Beauty therapy, Computing, Building and Surveying, Secretarial and Office Technology, Equipment Maintenance Technician, Agricultural micropropagation technicians, Health Care technicians and advisors etc.

7. Differing quotas of student participation in the cost of their education were used to determine what proportion of the total cost may reasonably be expected to be recovered by the University. Other income generators, such as offering for a fee specialized services in the fields of Medicine, Engineering, Law, Linguistics, Vacation courses and a few others. It was calculated that up to a third of the University's current expenditure could be expected to be recovered within a period of five years through savings and fees if all these cost recovery measures were instituted.

In conclusion, the various scenarios demonstrate that the University of Yaounde may only continue along its current path at its peril. Viable alternatives exist which will halt the steady drift towards disaster.

Chapter Two

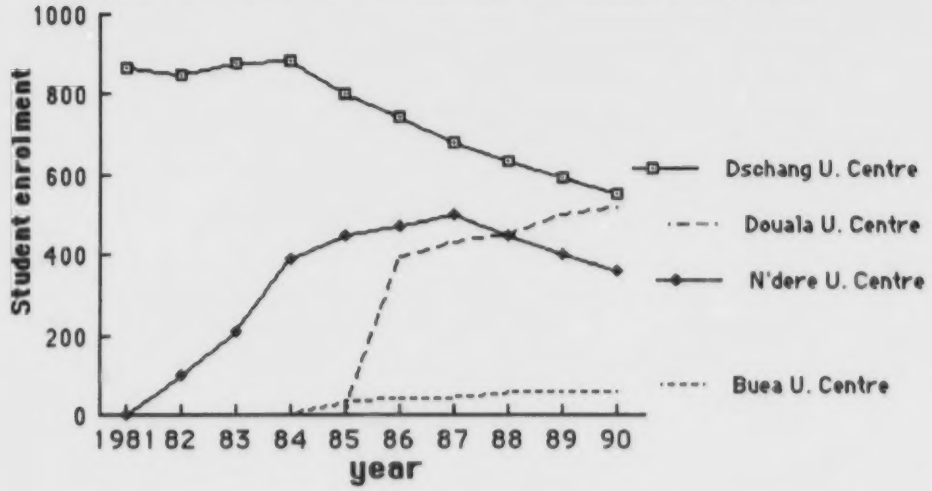
UNIVERSITY CENTRES

The University Centres were created much later after independence to cater to Cameroon's needs in specialized domains. The University Centre of Dschang opened its doors in 1980 to students wishing to train in Agricultural Sciences. Two years later the Centre at Ngaoundere started courses in Agro-industry. The Business School and the training of teachers of equipment maintenance schools were initiated in the Douala Centre in the mid eighties, and shortly thereafter the Buea University Centre specializing in training Interpreters and Translators was opened. The results of the evaluation of these centres contrast sharply with those obtained in the University of Yaounde. Further, there are sometimes equally instructive contrasts between these University Centres.

The numbers of students in these institutions are relatively small, sometimes too small for the size of the institution as is the case for the Buea University Centre with a total of 61 students at its peak year, 1989. In three of the four centres, the numbers of students have fallen. In the Douala Centre, the increase in the student population has been modest, the total number today not exceeding 550 (Figure 27). The number of entrants into these centres is determined by 'Market' needs.

FIGURE 27

GROWTH IN ENROLMENT IN THE UNIVERSITY CENTRES



Staff recruitment has not been as dramatic as was the case in the University of Yaounde. This, undoubtedly, is because there has not been the 'population explosion' in these institutions that occurred in the University of Yaounde. The number of full time academic staff is sometimes small, with the institution relying on the services of part time teachers from private and public business sectors. The Buea

centre has a full time academic staff fluctuating in numbers between 3 and 5 persons. There has been an acceptable student/staff ratio in these institutions over the period of their existence (Figures 28 & 29).

FIGURE 28

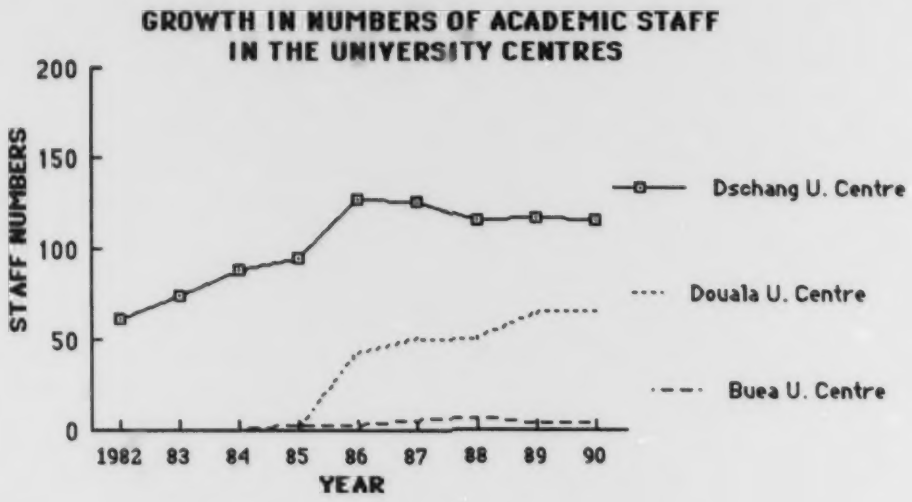
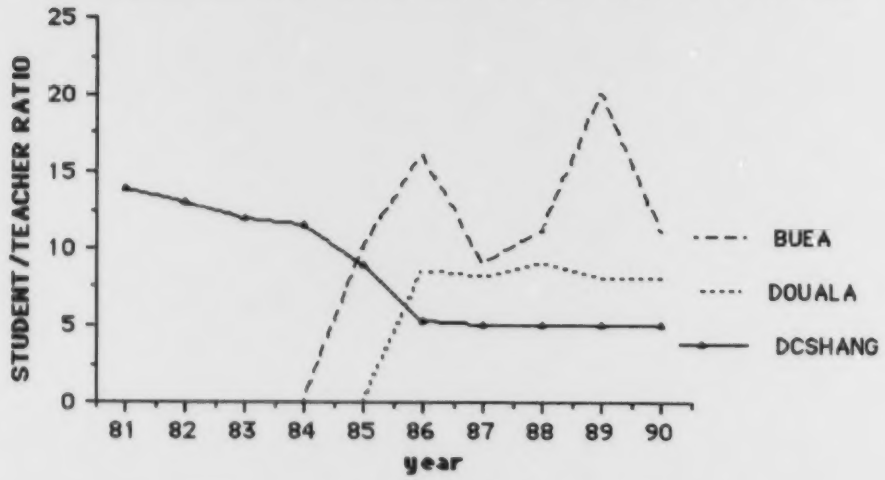


FIGURE 29



Fairly advanced technologies are used in the teaching process, the libraries are well stocked with books and periodicals, student assignments are fairly regular and there is much interaction between staff and students - a far cry from what is obtained in the

faculties of the University of Yaounde. It is not surprising, therefore, that these institutions on the whole show a fairly spectacular success rate compared to the faculties in the University of Yaounde. It is reasonable to attribute this high success rate to, at least in part, the selectivity of the procedure of gaining admission into these institutions. Examples are given in Figures 30 & 31.

FIGURE 30

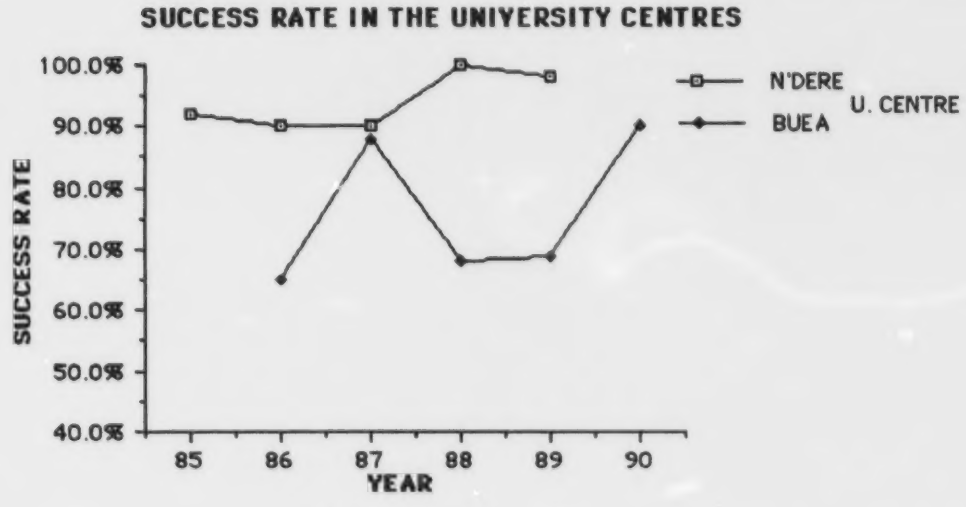
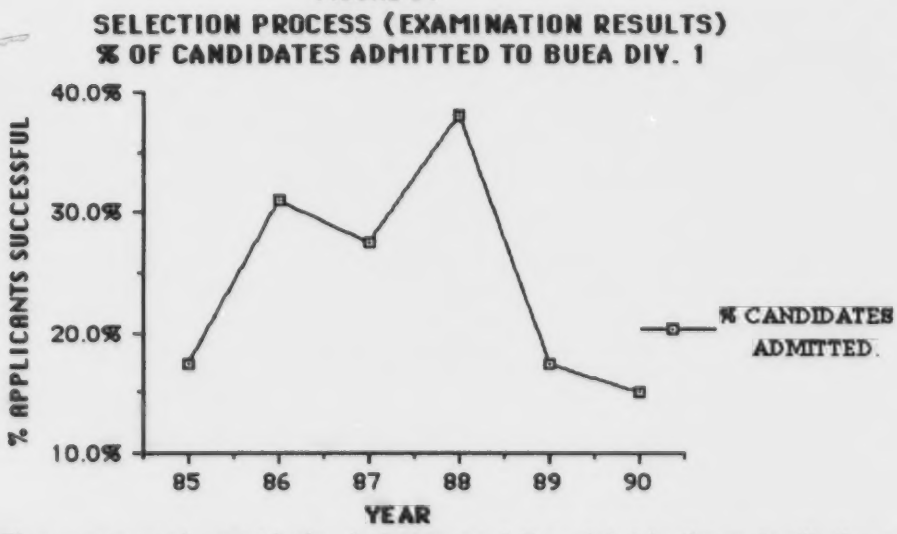


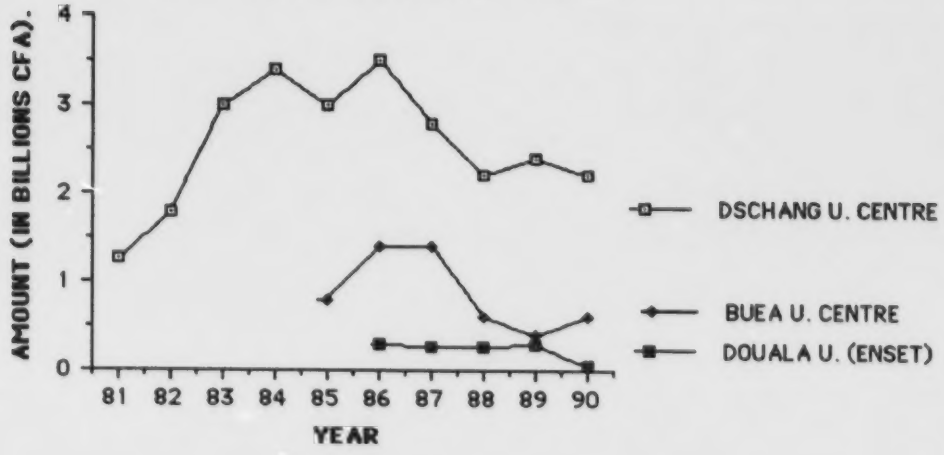
FIGURE 31



The mean cycle cost index is between 1.3 and 1.4 in these institutions, not unlike what was observed in the profession oriented schools of the University of Yaounde but contrasting sharply with the high indices in the three faculties. The annual budgets of these centres have fallen over the years (Figure 32).

FIGURE 32

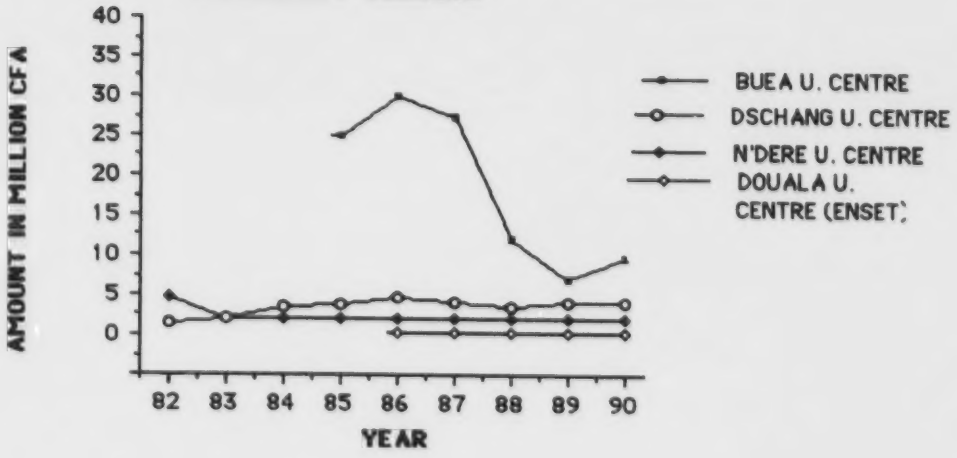
DISTRIBUTION OF RECURRENT BUDGET



Interestingly, the annual cost per student varies significantly between these University Centres (Figure 33).

FIGURE 33

ANNUAL COST PER STUDENT IN THE UNIVERSITY CENTRES

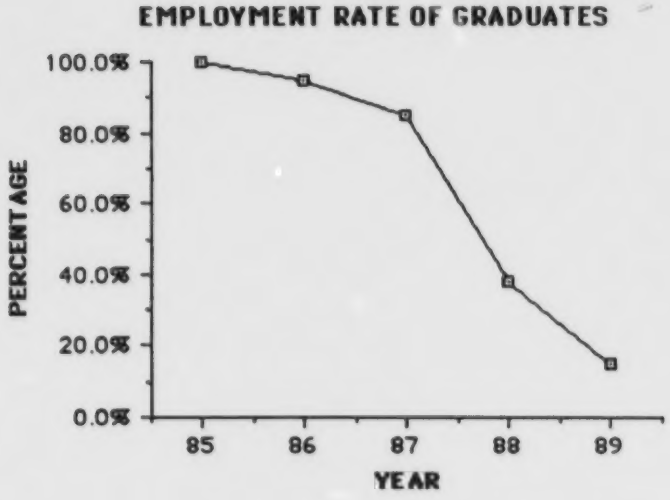


In the three institutions for which complete data was available, the centre at Douala had the lowest cost, next Ngaoundere, and finally Buea which posted rather alarming annual costs per student since its inception. These costs were 30 million francs cfa per student at the beginning and today stand at around 10 million francs

cfa, well above costs in the other centres and in the profession-oriented schools of the University of Yaounde. The reason for this is no doubt the small number of students at Buea and the high cost of maintaining the rather large infrastructure in good condition. Another disparity which was noted is the number of support staff for the different student numbers in these institutions. The most extreme examples were : The University Centre of Douala had 60 support staff for about 500 students, whereas the Centre at Buea had 123 for 55 students.

Graduates from the majority of these institutions have not fared well in the current period of economic recession. The example of the University Centre at Ngaoundere says it all (Figure 34).

FIGURE 34



The numbers of graduates of this centre who have been able to find employment in their areas of expertise fell to an all time low of around 20 percent in 1989, the last year for which figures are available.

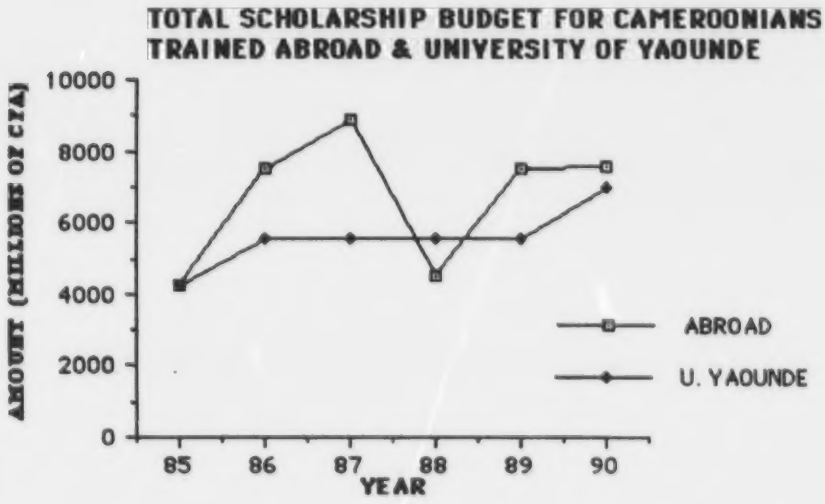
Chapter Three

STUDENTS WHO STUDY OUTSIDE CAMEROON

As we had stated earlier, a group of Cameroonians pursue higher education in institutions outside Cameroon. This we had designated the third category of the higher education system of Cameroon. A sizeable proportion of the country's investment in the higher education system goes towards the costs of scholarships and aid given to some of these students in foreign institutions. In addition, many of the remainder benefit from some forms of scholarship given them as part of the aid package to Cameroon from friendly Governments. It is for these reasons that we have attempted to evaluate the benefits of these investments within the framework of our general evaluation of Cameroon's higher education system. We recognize that the Cameroon Government cannot exert any influence on the educational system of foreign institutions. Non the less we maintain that proposals for the future orientation of tertiary education in Africa in general, and in Cameroon in particular, should take into account costs/benefits of education in foreign institutions especially those in countries with a different cultural background and level of development. To have attempted to obtain the data necessary for our analysis using the same questionnaire as that used for the Cameroonian institutions would have been a mammoth task. However, valid inferences may be made on the efficacy of the academic system in place in these institutions by looking at the 'quality' of their graduates. How these Cameroon graduates of foreign institutions perform in their fields of training in the Cameroon environment is certainly an objective assessment of worth of the investment. Unfortunately, there are no accurate data covering the span of these studies on important indicators of 'outputs/outcome' of these foreign higher education systems. We have no hard data on mean cycle cost, the percentage that gain employment in their areas of training, their performance rating, neither do we know exactly what proportion of these Cameroonian students return home. Most of what is generally said is anecdotal. We do, however, have data on what has been spent over the decade on these students and their fields of study.

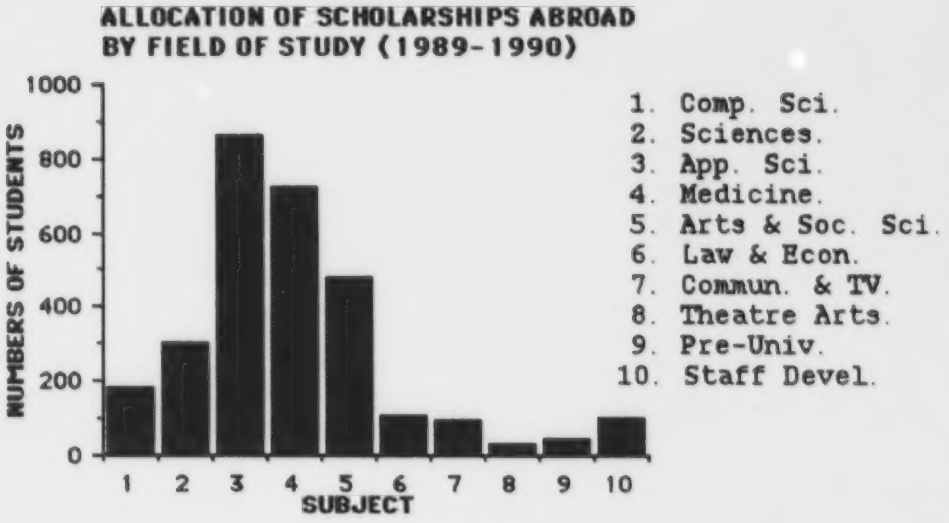
Figure 35 shows what the Cameroon Government has spent on its nationals in foreign institutions as scholarships or aid. This has been an appreciable sum compared with what was spent for the corresponding period on scholarships and aid in the University of Yaounde.

FIGURE 35



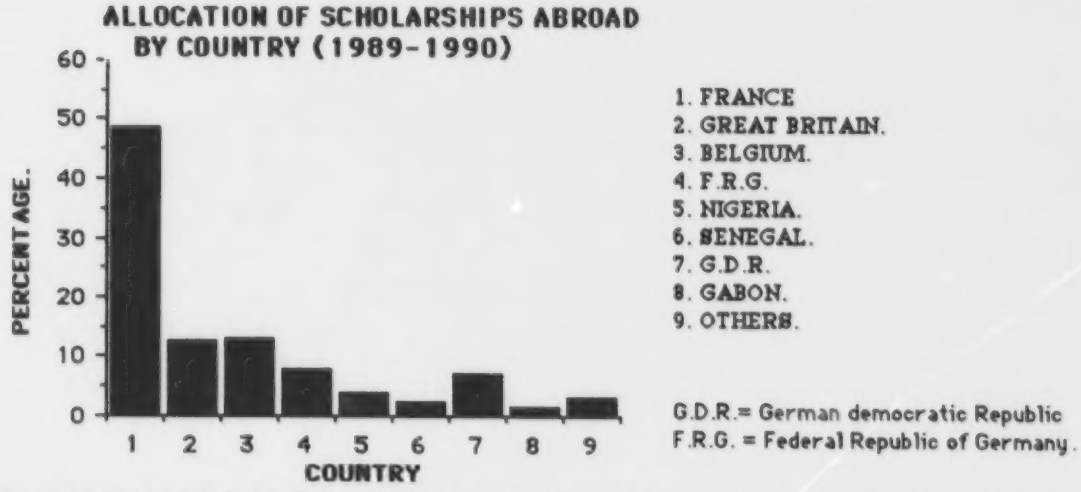
In 1990, for example, more than 20,000 students in the University of Yaounde are stated to have benefitted from either State scholarship or aid as opposed to just under 3,000 of their compatriots in foreign institutions. Interestingly, the cost of these foreign awards was more than that for the national awards. This, no doubt, is due to the higher cost of tuition and living in foreign than in national institutions.
Figure 36 indicates the numbers of beneficiaries and their different fields of training in universities outside Cameroon.

FIGURE 36



The vast majority of these beneficiaries study in Institutions in Europe (Figure 37). Since the sum of the investment is high, it is mandatory that the efficacy of the training received by these students and their performance in the Cameroon setting be looked at carefully.

FIGURE 37



Equally important is to determine the proportion of these grantees who do not return to Cameroon, as they represent a drain on Cameroon's meagre resources. These lacunae in information data illustrate some of the weaknesses in the education management system in place.

PART TWO

A QUEST FOR SOLUTIONS

Introduction.

In the early eighties, it was realized that the problems of the University of Yaounde were going to build to a head. Although it was recognized that long term solutions had to be sought, expediency demanded that some of the pressing problems had to be addressed without further delay. From the academic standpoint, the single most pressing problem was how to cope with the ever increasing numbers of students enrolled in the faculties. This caused difficulties in ensuring quality education to students of these faculties. It was further compounded by a steady decline in the proportion of the budget that was allocated to pedagogy requirements, with an increasing part of the total budget going towards meeting the costs of students' social services.

Although the continued building of more and more classrooms and laboratories would alleviate the constraint of seating and work space, this could not be carried out indefinitely given the University's policy of admitting all suitably qualified applicants. Further, there were not enough suitably qualified applicants for teaching positions in the University to match the growth of the student population. Given these diverse problems Task Forces were set up to propose practical solutions. A series of 'white papers' were prepared and these form the basis of this section of the book. Four major topics were addressed:

- Use of distance learning and advanced technologies in education to improve the quality of the delivery system and to provide this to as many students as possible.

- Staff development programme to provide more teachers for the University.

- Re-orientation programmes, to permit unemployed graduates from the faculties acquire marketable skills.

- Improved management of research in the University so as to address the needs of Cameroon.

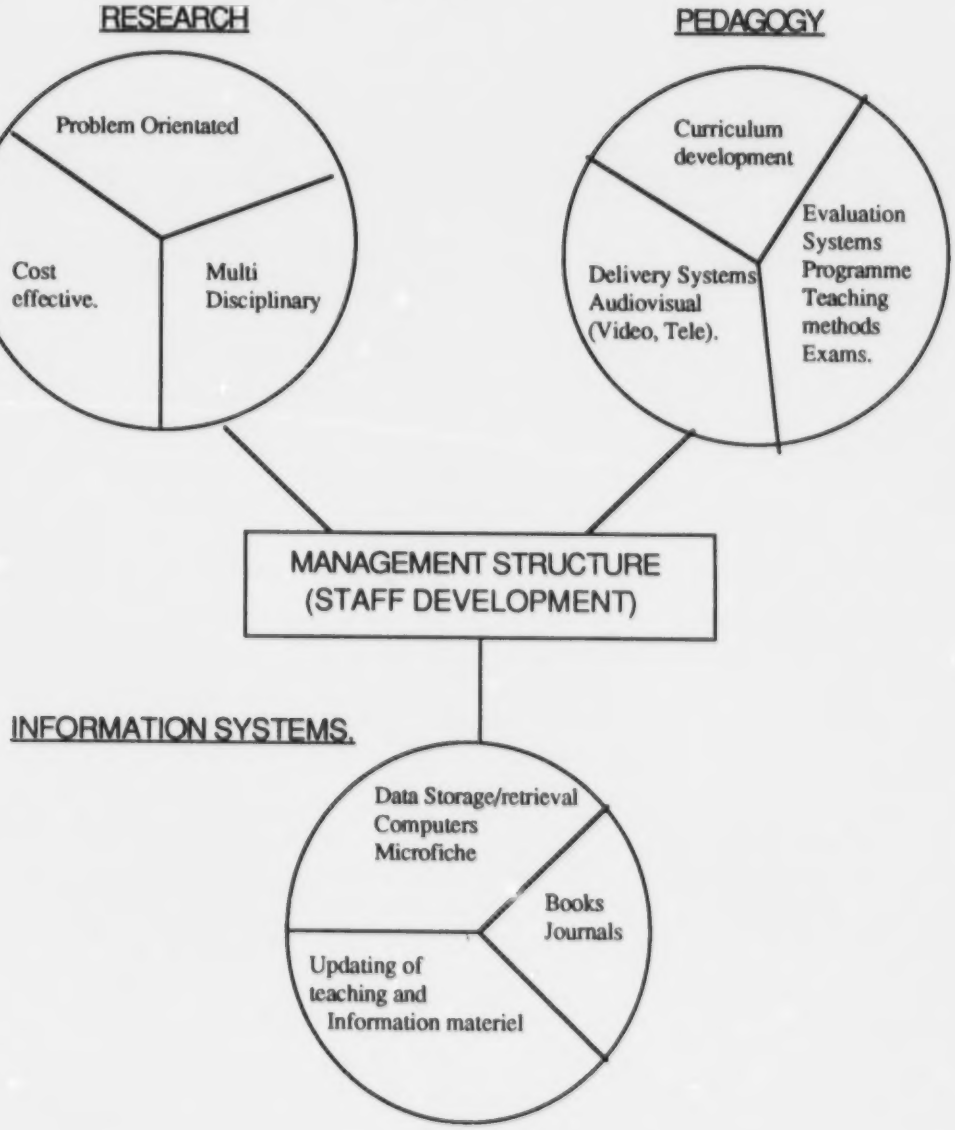
Summaries of these 'white papers' will be presented here, as well as some of the first results of the programme of implementation of the recommendations of these Task Forces.

Prelude.
Operational structure for improving instruction.

The quality of university teaching and evaluation can be improved despite large student populations. What is required is an operational structure which takes into account all the essential and diverse components of a teaching/learning system. In this regard, there are several good models one of which is depicted in Figure 38.

Figure 38

Model of a Teaching/Learning System



A good teaching/learning system should be based on sound pedagogic principles, where in curricula are developed and not simply allowed to evolve. Along with curriculum development goes good teaching methods and delivery systems. Delivery systems should exploit modern educational technologies such as video, television and computer graphics, whenever these are appropriate. Pedagogic practices should be under constant review so that programmes, teaching and evaluation methods, are in step with the institution's evolving objectives. Today, it is generally recognized that the quality of the instructional process and the appropriateness of the skills of the graduates to the needs of the environment where they are trained are appreciably improved by the research activities of the teachers. It is through continuing research that the specificities of the environment to be incorporated into the teaching programme may be identified. One of the favoured models of research in institutions of higher learning in Africa today incorporates the attributes: problem oriented, multi-disciplinary and cost effectiveness. In all of the above, Information systems play a key role. In addition to the traditional library with books and journals, there should be provision for using other forms of information storage and retrieval such as computers and net working, microfiche etc. This was how the authorities of the University of Yaounde saw the operational structure for improving instruction when they embarked in the second half of the eighties on solving pressing issues.

1. Distance Education (Advanced Educational Technology)

The Vice Chancellor put forward a white paper in April, 1986, aimed at exploring the use of advanced technology in the teaching and learning process in the University of Yaounde. As a result of this discussion paper, a feasibility study was commissioned. The study was carried out by the Media Department of the British Council, London. Their report states:

"The constraints currently affecting the development of the University of Yaounde all eventually relate to the need for a better quality of pedagogic instruction. ....Television and video are unlikely to provide the only solution but they can form a vital element in a strategy which can improve the overall quantity and quality".

The report went on to list several steps which should be taken if television and video were to play a key role in the University's strategy for improving the quality and quantity of pedagogic instruction. These included the following:

- establishing an operational structure which allows for effective creation, production and distribution of courses;
- creating an Academic Services Department with the responsibility and resources to implement the structure;
- instituting a base for this department which would include a T.V. studio, graphics workshop and a print room;
- identifying and training adequate numbers of suitable staff.

The University considered it desirable to discuss the above recommendations in a much wider forum before embarking on their implementation. A workshop on distance education was therefore convened. It took place in the University between June 8 - 13, 1987. The participants at the workshop comprised members of the Distance Education Working Committee of the University of Yaounde, Distance Education experts from Guelph University, Canada, and Media and Educational Technology experts from the University of Cambridge brought in by the British Council. The Canadian Experts were financed by the I.D.R.C. The workshop also assembled resource persons with experience in: educational technology, media production, graphics services, closed-circuit television systems engineering, T.V. systems engineering, T.V. systems maintenance, course module writing, training and evaluation methods.

The specific objectives of the workshop were:

a) elaboration of the University's strategy for improving the quality and quantity of its pedagogic instruction with distance education as the pivotal element;
b) development of an implementation plan of this strategy;
c) designing a pilot project to test the validity of key elements of the strategy;
d) development of a methodology for evaluating the strategy;
e) identifying factors in linkages with other institutions; which could favorably affect the successful implementation of the strategy;
f) examination of ways in which the strategy could be extended to cover instruction beyond the walls of the University.

The workshop also considered bilingual presentation of course material to cater to both English speaking and French speaking audiences. Looking ahead to the long term, it addressed such related issues as:

- packaging systems, with emphasis on technology appropriate to the socioeconomic and cultural background of the audience.
- delivery systems for Distance Education with special emphasis on those most suitable to the current state of communication in Cameroon and in other developing countries. These included such systems as mail and telephone systems, use of audio cassettes, video cassettes, live radio and television broadcasts, computer conference systems.
- creation of course materials and delivery systems which could be used in other countries in the region.

There was some debate as to the appropriateness of the term "distance education". It was argued that this terminology is appropriate only in situations where the students are physically removed from the place where the instructor is located. The term was in the end retained, but complemented with the title "Advanced Communication Technologies in Education" to emphasize the duality of purpose: not only is there the wish to reach out to students situated at varying distances from the teacher, but there is also the wish to bring to all, using advanced technology, the same 'best' view/presentation of the subject in a vivid, lucid and credible form.

2. REORIENTATION TOWARDS A MORE EFFECTIVE USE OF UNIVERSITY GRADUATES FOR NATIONAL DEVELOPMENT.

A university degree is not an end in itself, and in particular in developing countries graduates should be able to obtain employment and contribute towards nation building. Unfortunately many students, in particular those with law degrees, do not find that their qualification is of help in finding a job, and this leaves them both unemployed and frustrated. A further task force was therefore set up to look into strategies to encourage a more effective use of university graduates in national development. Both short and long term strategies were examined.

SHORT TERM MEASURES.

The task force examined both areas of need (those in which employment opportunities existed) and the numbers of graduates in various disciplines who were unemployed, to see how retraining of the latter group could be directed so as to take advantage of job opportunities in various areas. A full report was presented in the white paper of the task force.

In summary it was found that employment opportunities were available mainly in areas relating to science, technology and agriculture whereas most of the unemployed graduates were from the faculties of Law and Economics. Even here numbers alone do not reflect the true situation with regard to employment. Many students use the faculty of science as a stepping stone and whilst in the faculty sit the competitive entrance examinations to the professional schools such as C.U.S.S. (Medicine), E.N.S.P. (Engineering), E.N.S.I.A.C. (Industrial technology), and E.N.S.A. (Agriculture), or at the end of the course enter E.N.S. (Teachers training school) for a place on the teaching profession. They do not avail themselves of the job openings in such fields as medical diagnostic laboratory work, dietetics, mineral exploration, mining, environmental health studies, marketing to name but a few.

The major short term measure introduced to try to overcome this problem was that of re-training of graduates. Two methods were suggested. The first was of short training courses whereby specific skills could be taught to enable a specific job to be done. The second was by means of the "Maitrise Professionelle". This programme leads to a 'Professional' Masters degree with a course content which was designed to give students practical skills to enable them find employment. The course was designed to last a minimum of one year and use staff and facilities of the University, and the Public and Private sectors. Both methods are at present being implemented.

An example of the short training course is that of science students being taught laboratory procedures so that they can work in a private medical laboratory. In the case of the 'Maitrise Professionelle' there has been the re-training of students from the Faculties of Law and Economics and Arts to acquire marketable skills in Corporate Management, evaluation of investment programmes, accounting, marketing, Investment banking, applied linguistics, theatre arts, and urban planning. A few with Science degrees or who had dropped out of the Science degree course have followed well designed courses to become higher laboratory technicians in

immunology. In the first year these students were taught both theoretical and practical laboratory skills in immunology and biotechnology in the department of immunology of C.U.S.S. In the second year they have also learnt techniques in molecular biology. Employment as senior laboratory technicians in immunology is now assured. The training programmes have targeted small and medium sized enterprises for employment possibilities as well as encouraged some of them to open small and medium sized industries. Further examples of this together with relevant numbers of students/faculties can be found in the white paper together with estimates as to the cost of such re-training.

LONG TERM MEASURES.

If the University of Yaounde is to play its role in truly educating the population of tomorrow, then the long term measures examined and recommended by the task force will be of prime importance. The first of these recommendations involved a re-assessment of the objectives of the University. It was felt that emphasis should be placed on profession orientated courses so that graduates would have a clear idea of what they were learning, and why, and could see how this would enable them to contribute to national development by being gainfully employed. This in turn would necessitate a re-examination of the content of the programmes offered by the University. A strong pedagogy department thus becomes mandatory, and teachers need to be trained in curriculum development. This will be discussed later in the section on staff training programmes.

The second recommendation was of a change in concept of the course structure. Thus, instead of the present rigid straight through system in which all students in a discipline follow the same curriculum for 3 or 4 years, restructuring of formats and places of training is necessary. This is dealt with in more detail later on under the 'Multiversity' concept.

3. STAFF TRAINING PROGRAMME.

There have been two major changes which have affected the teaching faculty of the University of Yaounde over the last decade. The first was the rapid rise in student numbers in the faculties with relatively little increase in staff numbers. The second was the exponential rise in information in many disciplines, not only in the sciences and information technology, but also in the field of education, which has changed the content of many of the courses taught in University, as well as the methods by which such information can be delivered.

Thus staff need training :-

1. To update their own knowledge in the subject.
2. To update curriculum content- curriculum development.
3. To learn how to use new teaching methods.

Refresher courses are a necessary part of any staff development programme. Staff need to be able to attend international meetings, symposia and workshops in their field of expertise if they are to keep abreast of advances in their areas of expertise. Knowledge thus obtained should then be shared with the rest of the department. Symposia should also be organized locally with the participation of international organizations, so that many more staff can benefit from such continued education.

Curriculum development is vital if the gap between the developed and developing nations is not to widen further. Programmes need to be updated and orientated towards local needs and specifications if one is to exploit one's potential to the full. The writing of such programmes is a specialized job and requires that staff are trained in such pedagogy. In the white paper of 'Staff Development' this problem was addressed and concrete proposals put forward.

In brief, a department of Pedagogy would be set up with staff from each faculty and professional school participating. A core of staff would receive training in pedagogy including some at doctoral level, and these would act as a nucleus for training of other members of the department. The curricula in all faculties and departments would be examined and revised in the light of objectives established from guide lines drawn from consideration of 'end product' requirements.

Teaching methods are no longer limited to chalk and a blackboard. Teachers need to learn how to make and use modern teaching aids such as slides, overhead projectors, videos, closed circuit television etc. Workshops should be arranged to instruct lecturers on the practical aspects of these techniques. In the medical school an audio-visual department has already been established and a workshop organized into the preparation and use of audio-visual material. In the faculties a system of closed circuit television is now in place which will allow students in three lecture halls to assist at the same presentation.

4. RESEARCH.

Research, the pushing forward of the boundaries of knowledge, is essential if any institution, nation, is to develop. Research needs to be both theoretical and practical, and must be associated with the possibility of developing the results to the advantage of the community.

Research in Africa has often not received the due attention it deserves from Governments. They have claimed either that there are more pressing problems than research, or that resources could be better deployed elsewhere. Arguments they have used to bolster their claims include the unaffordable cost of providing a critical mass of trained personnel and suitably equipped infrastructure. They also point to the poor record of research in African Institutes, in terms of visible benefits accruing from local research efforts. Most of these premises are false. Without adequate data it is impossible for any country to plan a rational development programme, and in developing countries where resources are limited, such planning is even more important than in developed countries.

In Cameroon an attempt was made to combat this problem by the setting up of research institutes in Agriculture, Linguistics, Medicine and Medicinal plants, etc. These institutes have employed full time research scientists with research being funded from the budget of the institute. Although this has led to some good theoretical research most of it has not been developed afterwards. Another disadvantage of this method of funding of research is the lack of competitivity which it breeds. Projects may not be subjected to adequate peer review, and there is no pressure to undertake research with a practical application nor to finish work within a set period. The Ivory Tower mentality is preserved.

In the University of Yaounde criteria for promotion and change of grade include assessment of research projects undertaken, amount of funds obtained for research from sources outside of the University, and publications in international journals. This strategy has been instrumental in motivating staff of the University of Yaounde to undertake research and to seek funding from foreign donors. Within the university a commission was set up to review all research projects, and those which involved a multi disciplinary approach were favoured. Projects were expected to have a limited time period and specified objectives. Yearly reports were obligatory. In addition staff were encouraged to look for outside funding for their projects with the University of Yaounde participating in the costs rather than funding them completely.

The research budget of the University of Yaounde has been reduced substantially (>40%) over the last few years. In spite of this the number of publications by staff of the University has increased three fold over the last five years and 76% of research funds have been obtained from outside agencies. An outline of the principals of research within the university can be found in the publication 'Research' of University of Yaounde 1988 together with details of research carried out in the University during this time.

The following procedure was adopted before the University funded any research proposal. A detailed proposal was submitted to the research board of the Institute or

Faculty concerned for initial study. Thereafter each proposal was refereed anonymously by three research fellows in their domain of competence taken from a bank of experts. The reports of the Institute/Faculty and the independent experts were then forwarded to the Research commission of the Central administration- a commission composed of active research scientists- who on the basis of these reports took a decision as to funding of the project.

PART THREE

FUTURE ORIENTATION OF HIGHER EDUCATION

In this final part of the book, the future orientation of higher education will be discussed in the light of the lessons learnt above, and from the viewpoint that institutions of higher learning should, in developing countries, act as the prime mover in nation building. It is pertinent to summarize at this point the shortcomings which have been identified from the evaluation of today's system. It is not intended to present a litany of faults. Rather, only deficiencies in major areas considered to be crucial for developing new policies and appropriate strategies to implement them will be discussed.

Diagnoses

The overall conclusion that can reasonably be reached from a review of data on the evaluation of the higher education system here, is that there is an urgent need to improve the efficiency of the system in place. New strategies, indeed new policies, are required to maximize the benefits of the impressive investment of the country in this tier of the educational system.

The contrasting academic performances of students in institutions with unrestricted entry with regard to numbers of students, and those with a highly selective enrolment procedure limiting the number of entrants, makes entry requirements a key issue to be addressed in the formulation of new policies. There is no selection process for enrolment in the faculties other than a pass grade in the Baccalaureat examination, or in two subjects at the GCE 'A' level examination in addition to four subjects at the ordinary level. With regard to the Baccalaureat candidates, quite often, especially in the sciences, students obtain a pass grade through scoring high at the orals examination to make up for low scores in the written section of the examination. Even more important, there appears to be a mismatch between the students' knowledge and skills at entry into the faculty and what is assumed to be the case by the faculty pedagogy division, implicit in the official course programme. There is as well a wide disparity in knowledge and skills between students who follow the Baccalaureat or the GCE programme, and indeed between those in the different Baccalaureat series (for example, the science subjects in the Baccalaureat C, D and F series). These disparities are not taken into account in designing course programmes in the Faculty of Science. Thus, only the Baccalaureat C series forms a continuum with the programme in that faculty for no better reason than that of bias of the pedagogy authorities. These differences are for the most part gone after one or two years of study in the faculty - these are the students who form the bulk of the candidates for entry into the profession oriented schools, eventually providing a narrower spectrum of first year students in these institutions.

The transition from secondary school to university is fraught with difficulties, at the best of times. These disparities and mismatches pose enormous problems to the teaching/learning process, particularly when there are large numbers of students

with little or no interaction between them and their teachers. This is the situation in the faculties. In the profession oriented schools, by contrast, there are fewer problems because the high selectivity of the selection process makes for a more homogeneous group of entrants and a narrower spectrum of intellectual abilities than their counterparts in the faculties. The smaller numbers of entrants permit more interaction between academic staff and their charges.

The teaching/learning process in the faculties leaves room for a lot of improvement. Some lessons may be learnt from what one obtains in the profession oriented schools and institutions which use successfully a teacher-support learning approach. Their utilization of advanced educational technologies to supplement traditional pedagogic materials, their fairly well stocked libraries and the incorporation of student assignments in the teaching process contrast sharply with the inadequate teaching process in the faculties.

Curriculum development is a major area of weakness in most of these institutions. There is little or no participation of the potential employers of these graduates in the elaboration of these programmes. There is a high proportion of formal lectures in the instructional process in most of them. In the faculties, the curricula were last updated more than ten years ago. Further, they are not readily available to the students. It is not surprising, except in rare cases like the School of Medicine, that graduates of these institutions do not meet the needs of their employers as there is a mismatch between their skills and the exigencies of the market.

Evaluation of progress made by students in their training deserves closer attention. The systems of evaluation in the faculties are inadequate and inappropriate in today's preoccupation with efficiency issues in tertiary education. Tests of cognitive levels which rely heavily on the student's memory, thus favouring those who learn by rote, stifles inductive thinking, originality and creativity in many a young student. Many of the evaluation formats in the faculties in particular, do not at any time test the candidate's ability to utilize knowledge acquired to solve problems. It is not surprising that many of such students end up quite happily carrying out mundane chores in the administration in the public service.

Outputs and outcome indicators highlight deficiencies in the management of tertiary education in Cameroon today. Using cognitive level as one indicator of output, one is lead to the inescapable conclusion that the failure rates in the faculties are unreasonably high and would lead to high costs of educating students in these institutions. The mean cycle cost time for a three year undergraduate course in the Faculties of Arts, Law and Economics, and Science during the first half of the eighties were 7.7, 8.9 and 18.2 years respectively, giving a mean cycle cost index of 2.57, 2.97 and 6.1 respectively. Contrast these with cycle cost indices varying from 1.2 to 1.6 in the professional schools and institutions.

Table 21.
Comparison of Cycle Cost Index in the Faculties and the Professional Schools.

Institution	Cycle cost (years)	Length of Programme (years)	Cycle Cost Index
Fac. Arts.	7.7	3	2.57
Fac. Science	18.2	3	6.1
Fac. Law & Econ.	8.9	3	2.97
ENS (Teachers Training)			
ENSP (Engineering)	5.7	5	1.14
CUSS (Medicine)	7.5	6	1.25
ESSTI (Mass Communication)			
IRIC (Diplomacy)		2	1.02

Another indicator of outcomes is the performance of graduates in their fields of training. Although not all institutions have sufficient information on follow up of their graduates, the data available indicates that only graduates from the schools of medicine, engineering and post and tele-communication are considered by their employers to render satisfactory service. This may be due, at least in part, to the fact that these institutions had major inputs from end-users in their curriculum development activity. Employers show varying degrees of satisfaction with graduates from the other professional schools. At the other end of the spectrum are graduates from the faculties who do not seem to have marketable skills. These form the bulk of the unemployed 'elite.' Only about four out of one hundred graduates of the Faculties obtain employment in their fields of study. Some of the others eventually gain employment unrelated to their training, in such diverse areas as butchers, taxi drivers, bakery assistants, clothes-washers, petrol station attendants, hawkers etc. If one were to compute the repayment times of training costs of the various groups of graduates based on the mean cycle cost time, with only a third of their earning capacity going towards repayment costs, not discounting for inflation, repayment times of graduates of the Faculties vary from 42 to well over 100 years. The latter figure is derived from an earning capacity of 45,000 francs cfa per month for taxi drivers, hawkers etc who have graduated from the Faculty of Science.

Management efficiency seems to be a major constraint. There is no Education Management Information System in place in any of the institutions evaluated. The absence of formal and continuing training of senior management staff, the presence of a decision making process which is not based on a thorough study of alternatives, the absence of motivation - all these are some of the glaring indicators of a far from optimum management system. An efficient system would have averted such incongruities as: the large number of unskilled and semi-skilled administrative staff compared to academic staff and student population in the University Centre at Buea;

the over-centralization of the decision making process and the top heavy central administration of the University of Yaounde which has depleted the ranks of the academic staff.

The continuation of the present scholarship policy will sound the death knell of quality higher education. Less and less is being spent on the education of each student while more and more of the budget goes towards the social needs of the students. Indeed, some of the students see scholarship as unemployment benefits and are only too happy to stay on indefinitely in this academic nirvana. The situation of scholarship awards to Cameroonians in foreign institutions is no better. First, it is not known precisely how many of these students in institutes in Europe and North America eventually return to Cameroon. Those who do not return represent not only a drain on the country's finances, but also a subsidy to their host countries in the enlargement of their pool of human resources, already no mean size. Secondly, there is no evidence that these students, on their return to Cameroon, fare any better in the labour market than their counterparts from Cameroonian institutions . More often than not they have a harder time adjusting to the Cameroon environment. Thirdly, the justification for awards made in certain areas like medicine, law, arts, economics, is a moot point. These disciplines exist in Cameroonian institutions of higher learning which, it may be argued, have teaching programmes more suited to the needs of the country than the programmes in the foreign institutions. It has been calculated that savings made from spending only half of the current budget for scholarships and aid to Cameroonians in foreign universities (for only those pursuing postgraduate studies or undergraduate studies in selected disciplines and professions not currently taught in Cameroonian institutions) would, in three to four years be sufficient to set up another university in Cameroon.

Policy statements and adopted strategies are out of step with local realities. No prior determination of market needs and priorities are made before the detailed elaboration of goals and strategies. Further, strategies so far elaborated do not take into consideration constraints in human and financial resources. The net result has been far from optimal exploitation of infrastructure facilities, modern technology and available expertise. Innovation, competition and daring are stifled under these circumstances, while conformity, homogeneity and lackluster performance seem to be attributes for survival and advancement within the system.

Proposals for the future

Prologue :

This proposal will avoid the pitfall of designing a development plan using a bottom-up, or parallel approach which has characterized Cameroon's five-year plans in the past. We advocate a strictly top-down approach, wherein Higher Education is not considered as an isolated, self-sufficient and self-serving undertaking. Rather, it serves as a plank in the platform for nation building. Nation building is taken to mean economic development first, as this is the prime mover of other forms of development. It is therefore necessary to examine Cameroon's economic prospects for the future. Thereafter, one can identify a role for Higher Education and propose reforms for improving its efficiency with economic development as the ultimate goal.

Another point of departure from past practices is that a holistic approach to education, both vertical and horizontal, is preferred. On the vertical axis, Higher Education is only one tier of a structure with primary and secondary education as the foundation and lower levels respectively. A holistic approach requires that the entire structure be overhauled. As time and resources do not permit a thorough examination of the whole system, the next best thing is to clearly define specifications for inputs into tertiary education from lower levels, so as to minimize problems in the interface between subsystems. This, coupled with a clear statement of what Higher Education is expected to contribute toward achieving the ultimate goal, should provide enough information for reforms in the other tiers to ensure that the whole system provides full coverage, with no gaps and only minimal overlaps.

A third point of departure is the tacit acknowledgement, in view of the foregoing, of the inefficiency of the system in place and the need to orientate future forms of higher education toward cost effectiveness. This will be feasible only by taking into account the diagnoses made in the foregoing section, local realities in terms of potential/priorities, and resources - human, financial and material. If higher education is taken to mean post-GCE 'A' level/post-Baccalaureat, then any changes envisaged would of necessity mean reviewing the structure, content and processes in both primary and secondary forms of education. Further, should this tertiary form of education be reserved for an elitist-creating group or should it be made available to all, in differing formats where-in the acquisition of skills of varying complexity is the primary consideration?

Economic considerations.

Table 22 shows key economic indicators for Cameroon and their trends since the 1987/88 fiscal year. The evolution of key macro economic indicators have been unfavorable in the last few years and are unlikely to be reversed in the medium term. As with most countries in Sub-Saharan Africa (SSA) and especially those in the franc zone, Cameroon has become less competitive in international markets even for primary products owing to the over valuation of the cfa franc, to high wages and to low productivity. In industry and commerce Cameroon and other SSA countries are even less competitive.

The industrial sector has survived only because of heavy protection. In areas like textiles where protection has not been possible (principally because of open borders with Nigeria) the industry is in crisis. These problems are further aggravated by the small size of Cameroon and lack of financial support by the banking sector. The World Bank in its World Development report of 1990 projects favorable economic prospects in this decade for industrialized countries, rapid satisfactory growth for North Africa, East Africa, East Asia, Latin America and the Caribbean, but poor prospects for SSA countries. The poor performance of the Cameroon economy is both cause and effect of the low absorption of graduates because they do not have marketable skills but earn administratively determined high wages which do not correspond to productivity. The elitist educational system results in rural-urban migration, to an aging of the agricultural population - a relative decline which will ultimately culminate in loss of the country's food self-sufficiency.

Table 22

Key Economic Indicators

Years	87/88	88/89	89/90	90/91	91/92
GDP growth (CP)	- 13.5	2.2	-2.8	-2.5	-4.4
deficit	-124.0	-142.0	- 237.0	-280.0	-370.0
Balance of payments	-3.5	-0.4	-4.3	-5.7	-6.7
Public debt	30.2	34.9	41.8	48.1	55.8

(% or Billions of francs cfa)

Major economic options :

Cameroon's major economic option will continue to be agriculture based for some time yet. The threat of losing the country's hard-earned food self-sufficiency should be enough incentive to maintain this focus. There are other compelling reasons as well. Petroleum production, which in the past has been a major income earner, is not expected to last for long. Even the industrial future, at least in the short and medium term, is likely to be based on the transformation of the country's non-mineral resources, such as food crops, cash crops, timber and latex.

Surrender value :

A particularly inefficient practice characteristic of the current educational system is the fact that the surrender value at intermediate points in most teaching programmes is virtually nil. The student has to complete the course successfully to earn material reward. There are two sides to this issue : a supply side controlled by the University in the case of higher education, and a demand side where the major determinant is Government. On the demand side, the "de jure" surrender value in higher education is zero. Government, by far the largest employer, considers a student's involvement in university studies an "all-or-nothing" proposition. He either succeeds or he fails. Civil service regulations do not recognize partial success. On the supply side, University curricula are designed with the premise that the student will make it through the programme of studies. One is reminded of the energy band theory in physics, where electron energies are quantized into bands, with forbidden gaps in between. The educational system institutes allowed "utility levels." At tertiary level, these are the various degrees. The forbidden gaps are the intervening years between successive degree levels (Table 23).

Table 23

Allowed Utility Levels

Dr. d'État	<--------->
	Forbidden gap - 5 years
Dr. 3ème Cycle	<--------->
	Forbidden gap - 3 years
Maîtrise	<--------->
	Forbidden gap - 1 year
Licence	<--------->
	Forbidden gap - 3 years
Bac/GCE-AL	<--------->

The absence of a diploma for successful completion of each year of university education and the lack of recognition of these years of study by the Civil Service system are two sides of the surrender value question. It is not clear what is cause and what is effect. There are advantages in curricula and employment practices

which give non-zero surrender values to all the intervening years in our system of education. Not only would the Faculty pay more regard to imparting discernible skills at the various levels, but this system would permit students to leave and to return and continue at will.

To compute the mean cycle cost of a batch of students who enrol for a three-year programme one would have to take into consideration the number of students who graduate at the end of three years as well as the numbers of those who have had to repeat the intervening years of study. The mean cycle cost in years may be calculated as follows:

$$C_t = (N_1 + N_2 + N_3) / N_g \text{ years}^1$$

where

C_t = mean cyle cost:
N_1 = number of entrants.
N_2 = number of students from original batch in year 1 and year 2.
N_3 = number of students from original batch in years 1; 2; & 3.
N_g = number of students who graduate at the end of year 3.

If, on the other hand, the intervening years have no-zero surrender values, then the cycle cost becomes,

$$C_{t'} = K_1C_{t1} + K_2C_{t2} + K_3C_{t3}$$

with,

$C_{t3} = (N_1 + N_2 + N_3)/N_g$
$C_{t2} = (N_1 + N_2)/N_3$
$C_{t1} = N_1/N_2$

The coefficients K_1, K_2, and K_3 indicate the relative value of graduates of each year of the programme. (They must add up to 1). Thus, one might have a negative value, if skill acquisition is assumed to increase linearly with time,

$K_1 = 1/5$
$K_2 = 2/5$
$K_3 = 3/5$

In a utopia, where all students pass, N_1, N_2, N_3 and N_g are all equal. Thus C_t and $C_{t'}$ are equal to 3. In anything other than an ideal situation, $C_{t'}$ is less than C_t. The farther the situation is from ideal (more and more failures) the greater the advantage of the system with non-zero surrender values. The Multiversity concept described below is one way of achieving this advantage.

The industrial development master plan and its impact on Higher Education :

The master plan for the industrial development of Cameroon lays emphasis on 12 main areas :

1. agro-industry
2. textiles
3. timber
4. oil
5. gas
6. pharmaceutical industries
7. iron works
8. bauxite and aluminium
9. metal works, mechanical, electrical, electronic and computers, and maintenance industries
10. building materials
11. chemical industries
12. plastics

The plan assumes that increase of the population of working age (15 - 59 years) will be about 120,000 per year. Based on this figure, about 1.2 million additional jobs will be needed by the year 2000. This translates to an estimated new jobs requirement per year for the industrial sector, representing 27% of the total non agriculture related employment. The needs are not only in terms of more jobs but also in terms of better quality work from employees.

The plan lists among the constraints to industrial growth, the shortage of qualified personnel for both labour and management positions. In key sectors such as the oil industry, it is recognized that more Cameroonians need to be trained to reduce dependence on foreign expertise which at present dominates manpower in these sectors.

The strategy for achieving the objectives of the plan lays emphasis on small and medium scale industries, and transformation of local raw materials into finished goods. This is expected to curb the current unfavorable practice of exporting raw materials at low prices and importing, at high prices, finished goods produced from them. Significant price differentials between raw materials and semi-finished products augur well for preliminary transformation to be done locally as a first step.

The plan calls for training in technical fields at both secondary and tertiary levels of the educational system financed by both the public and private sectors. It recognizes the need for continuing education and advantages of on-the-job training. It espouses improved efficiency in the system of training potential employees of industry. Finally, the plan advocates applied research and exploitation of research results, with a view to improving agricultural productivity and industrial output. Table 24 gives two examples of comparison of cash crop yields in Cameroon and elsewhere to

underscore the need for more applied research, training and extension services in the agricultural sector.

Table 24

Product	Productivity in Cameroon	Productivity elsewhere	Country
Cocoa	300-350kg/h	600kg/h	Cote d'Ivoire
"	"	1000-3000kg/h	Malaysia
Arabica coffee	150-160kg/h	1000kg/h	Brazil/ Columbia

*source : "Cameroon's Bet", Presidency of the Republic, 1990

The Multiversity Concept.

It is becoming obvious that the concept of entering university to follow a fixed 3-4 tier course with a set course content and a 'degree' at the end of it can no longer be considered as an ideal. It often leads to the production of a large number of graduates who are both unemployed, and unemployable in their field of training.

All tertiary education may be considered under the one umbrella wherein the acquisition of marketable skills is pivotal for the vast majority of cases, but with some provision for the pursuit of knowledge for its sake in a minority of cases. The different levels of skills are considered tiers in a multi-tiered system. General education in forms of general degrees may be considered as props for a professional career for the majority, and only ends in themselves in the minority of cases. In the multiversity, education is not restricted to the physical confines of the institutions, but includes as well community participation in the instruction process through its industries, business enterprises and other professional places, as well as institutions of research. Further, training may take the form of straight-through courses or modular education permitting the trainee to acquire practical experience in his chosen area alternating with taking the proscribed course programme - as in 'Sandwich' course. Students could complete such modules as and when necessary/possible with a degree being awarded upon successful achievement of a sufficient number of credits.

In this scenario vertical as well as horizontal movements in the career structure are permissible and catered for. Dropping out and re-entering this multitiered system to continue the "career climb" or to slide into a horizontal slot in another career structure should be possible. The Multiversity thus replaces the Single-Entrance Single-Exit (SESE or pipeline) of our traditional university with a Multiple-Entrance Multiple-Exit (MEME) system. Each exit point is also an entry point.

To model it simplistically, the elemental building blocks in a traditional university are programmes. These are put together by students to build professions. In a multiversity, the elemental building blocks are skill oriented course modules. These are put together by the multiversity to build programmes. The students have two options. They can build professions with these programmes; this corresponds to the traditional option. In addition, they can build other programmes tailor-made to their needs, using the skill oriented modules. The number of choices available to students is thus increased - operating at programme level, at skill module level, as well as with mixtures of both.

The main determining factor of this new tertiary education system will be prevailing market condition. Continuation or discontinuation of a programme will depend on how marketable the acquired skills are. A schematic representation of some of the traditional professions that can be catered for in such a multiversity at costs very much lower than that in traditional universities is given in Figure 39. An example is given in **Appendix 2** of how market forces in the area of agriculture - probably Cameroon's area of greatest potential - can determine the training of professionals of different skill types.

Financing Higher Education

It is unlikely, indeed undesirable that higher education will continue to be financed exclusively by Government. Experiences elsewhere call for the creation of privately financed institutions. Some may argue that the final arbiter, the Market Forces, will force these private institutions to establish good academic standards. Others may well advocate some regulatory body, not controlled by Government, to take charge of ensuring good standards in all institutions of higher learning.

The controversial subject of scholarships will have to be addressed sooner or later. It is clear that the Government may continue awarding scholarships to large numbers of students in institutions at home and abroad only at the peril of compromising quality education to its students. Student participation in meeting the cost of education is the only practical solution given the precarious state of the Country's finances.

Management.

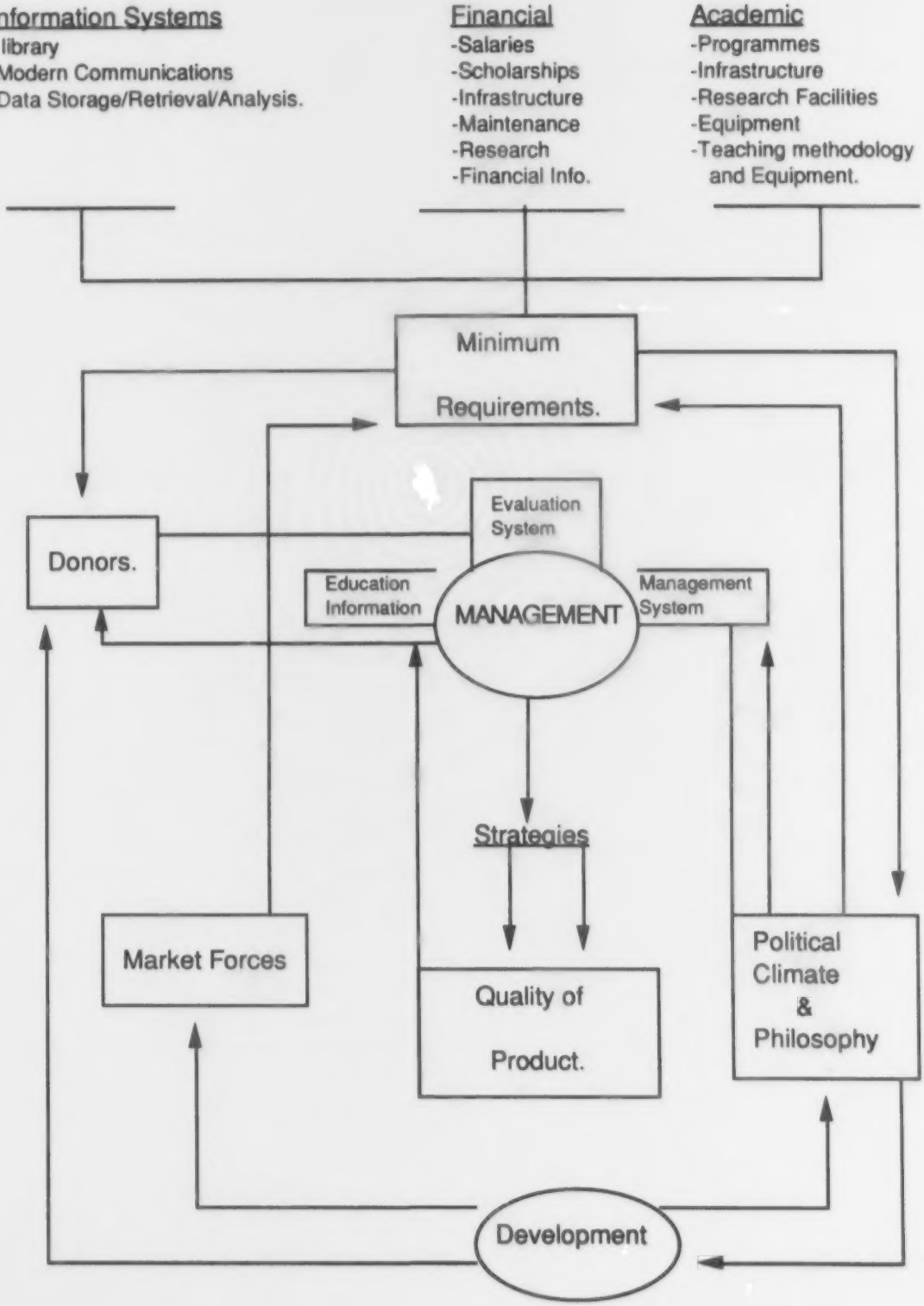
The subject of management has been left to the end because it underpins most of the reforms advocated for the Higher Education System in Cameroon. Figure 40 depicts the schematic representation of inter-related, interdependent and interacting forces which have to be taken into account separately and jointly in the management of institutions of higher learning in Cameroon and in other countries in Africa.

There are certain minimum requirements to ensure the viability of an institution with acceptable academic standards. These have been grouped under

three headings in the schema: Academic, Financial and Information Systems. Constraints with regard to any of the component units of this tripartite will inevitably affect the final product. An efficient Management is aware of this. There are also other important influencing forces - Market Forces with changing demands, Government and donors with evolving policies which need not have the same considerations as those of Management. Thus, an efficient educational management information system as well as continuing evaluation of performance of the institution are necessary tools for Management to develop appropriate strategies. It is understandable therefore, that efficient Management can evolve and thrive only in situations where recruitment and promotion of its staff are based on objective criteria such as appropriate qualifications, past performance and experience.

Figure 40

Schematic Representation of Interacting Forces.



EPILOGUE

This book has been overtaken by events. The crisis which was predicted has come to pass. In March 1991, the students of the faculties of the University of Yaounde went on a rampage closing down normal academic activities. The third term of the academic year was a wash out. End of year examinations were conducted under the surveillance of armed members of the forces of law and order to protect, they claimed, these students from the excesses of their defiant colleagues. Some of the students had left at the height of the riots for their villages, vowing never to return to the University of Yaounde. The Government, in May 1991, announced its intention to create two new universities by transforming the University Centre at Buea into a full-fledged university in the Anglo-saxon tradition, and the Ngaoundere Centre to a university in the francophone mould. The Technical Commission studying the implementation of the Government's directive with regard to the proposed Buea University is doing so bearing in mind lessons learnt in the evaluation presented in this book, and the future orientation of Higher Education expostulated in Part three of this book.

It is hoped that the University of Yaounde will rise again like the phoenix from the ashes.

APPENDIX 1

EVALUATION OF AFRICAN UNIVERSITIES AND INSTITUTIONS OF HIGHER LEARNING

Name of University.

A. General (Baseline Data).

A.1 Country
A.2 Population Size
- Global
- % Males % Females
- Distribution (%) in the following Age groups
<17 years, 17-30, 31-50, >50

A.3 Gross National Product (GNP)
A.4 Per capita income per annum
A.5 Major national income sources (% of GNP)
- Agriculture
- Industry (light, heavy; specify, e.g. Mining)

A.6.1 Political Structure.
- Unitary State
- Federation (specify number of States)
- Confederation (specify number of States)

A.6.2 Type of Government.
- Civilian or Military Government ?
- If Civilian Government, unitary or multi-party system ?

A.7 Employment rate
A.8 Inflation rate
A.9 State controlled economy or free market economy ?

B Higher Education Facilities.

B.1 Number of Institutions of Higher learning
B.2 Number of Universities
B.3 Number of post-secondary non-University Institutions
(list them and their stated goals)

C With regard to your University in particular :

C.1 (Select most appropriate description)
- State owned
- Private
- Private but State supported

C.2 State relative proportions of sources of funding you receive :
- State
- private donors
- students' fees
- international agencies or foreign governments
- own resources (specify)

C.3 What proportion of your annual budget is allocated to the following:
- academic affairs
- administration
- social services for students and staff

C.4 What has been the trend of your budget in the last 5 years ?

C.5 Provide information requested in the table below on the various training Institutions in your University

Institution. e.g. Faculty Enginee-ring etc.	Number of students enrolled	Number of teaching staff	Number of ancillary staff	Profession-al degree or general degree	Duration of studies for under-graduate degree	If Post-graduate degree awarded, state degree and cycle time
	M F	M F	M F	M F	M F	M F

M= male F= Female.

C.6 Proportion of staff who are non-nationals :
- Teaching
- Administrative

C.7 Minimum academic entry requirements for students into :
- Undergraduate courses
- Postgraduate courses

C.8 For each Institution, what is the ratio of applicants to those admitted ?

C.9 What is the ratio of students in the last year of high school/secondary school to the number who gain admission into the University ?

C.10 Are there specific preferences for enrolment for certain courses or into certain Institutions; e.g. regional, foreign, age limit on enrolment, gender, minority and ethnic considerations? Specify.

INPUTS and PROCESS

D Teacher characteristics

Provide the information requested in the table below, separately for each institution (school or faculty)

Institution e.g. Faculty of Law	Basic academic qualification	Teacher training attainment	Age range in years	*Attrition/turnover in last five years	
				Number 5 yrs ago	Number today
Inst. #1					
Inst. #2					
Inst. #3					

* Indicate in brackets ( ) student population 5 years ago and today.

D.1 Teacher distribution in numbers by grade; average period before progression to next grade.

Institution	Lowest grade	Intermediate grade			Highest grade (Full Professor)
		( )	( )	( )	( )
Inst. # 1					
Inst. # 2					
Inst. # 3					

** Provide all information requested for each institution (school or faculty) separately, on a different line.

E. FACILITIES

Institution	Number of Students	Lecture halls				Tutorial rooms				Laboratories				Library			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Inst. # 1																	
Inst. # 2																	
Inst. # 3																	

** Provide all the information requested for each institution (school or Faculty) separately on a different line.

E.1 State condition of facilities (Good, Fair, Unsatisfactory)

E.2 Are there any special-use facilities ? If the answer is in the affirmative enumerate them.

Library

E.2A Are there library facilities in :

1) each department ?

2) each faculty and professional school ?

E.2B If in the affirmative for E.2A, provide information on the characteristics of the facility as depicted in the table in E.4. Separate information should be provided for the facility in each department and in each institution.

E.3 Is there a Central Library as well ?

E.4 If in the affirmative for E.3 provide the following additional information on the Central Library's characteristics and on the facilities available there-in.

Library Questionnaire

Number of potential users	Size in sq. meters	Seating capacity	Total No. of books stocked	Annual acquisition budget	No. of specialist journals	Average time to get latest edition from date of release
Other Facilities						
Audio-visual aids	Computer search	Manual search	CD ROM	Microfiche	Loans from other libraries	
STAFF						
No. Senior Staff		No. Intermediate Staff		No. Junior Staff		No. Unqualified Staff
(Highest qualification)		(Highest qualification)		(Highest qualification)		(Highest qualification)

* "highest qualification " refers to average member of staff in category concerned.

E.5 State how much time is spent each year on continuing training of library staff (weeks/person/year; range for all staff; mean time for all staff)

E.6 Are there courses organized by the Library staff for users for optimal exploitation of library facilities ?

F EQUIPMENT (Laboratory, teaching - lectures, seminars, self instruction)

Are there equipment available for the purposes enumerated above ? What is their current condition ? Are they appropriate for use for the purposes stated above ?

Equipment Inventory.

Institution	Self Instruction	Routine programmed practicals	Formal teaching	Research
Inst. # 1	( ) • §	( ) • §	( ) • §	( )
Inst. # 2	( ) • §	( ) • §	( ) • §	( )
Inst. # 3	( ) • §	( ) • §	( ) • §	( )

( ) Indicate their condition: G= Good, F= Fair, U= Unsatisfactory.
• § Number and range. S= Sufficient for student numbers: I = Insufficient for student numbers.

F.1 Indicate :

1) if these are adequate in numbers and quality for the programme
2) if they are adequately maintained

G CURRICULUM/EDUCATIONAL Materials

G.1 For each institution, when was the curriculum last updated ?
How long did it take to carry this out ?

G.2 Indicate if any of the following was part of the curriculum updating activity :

- participation of all or most of the departmental staff
- participation of only the head of department and a few staff
- this was done by only the Head of the Institution and the Pedagogy Division of the Institution
- this was done by the Pedagogy division of the University only
- participation of the Central Administration of the University
- participation of the Government Ministries concerned
- participation of the Private Sector end users
- participation of other Universities
- participation of foreign governments and international donor agencies
- others (specify)

G.3 Indicate whether or not curriculum revision was undertaken after an evaluation of existing curriculum

G.4 Is the curriculum available to every student ?

G.5 Are the standard text books recommended available to every student ?

G.6 Is there a University bookshop ? Are all recommended books available in the bookshop ?

G.7 What percentage of the recommended reference books are available in the library ?

G.8 On average, how many reference reading books per discipline are recommended to the student ?

G.9 Are audio-visual aids used ? If yes, specify them.

G.10 If other support materials are used, enumerate them.

G.11 What are the relative proportions of time allotted to lectures, tutorials, practicals, assignments, student's time off-task (hours per annum) ?

G.12 What are the relative proportions of time allotted to the following activities for the various categories of teaching staff :
teaching/instruction, research, interaction with students ?

	Lectures	Tutorials/Seminar	Practicals	Research	Interaction with students
Professor					
Associate Professor					
Senior Lecturer					
Lecturer					
Assistant Lecturer					

G.13 What are the modalities of evaluation in vogue (department or institution) ?
- continuing evaluation (frequency of tests/annum)
- periodic evaluation (" " " ")
- evaluation of assignments "
- others (specify)

G.14 Do the staff go over, regularly, evaluation results with students ?

G.15 Do external examiners participate regularly in the evaluation of student achievement ?

G.16 If the answer to the preceding question is yes, state whether or not external examiners come from any of the following :
- other universities in the country
- other universities outside the country
- experts from research institutes
- experts from public and private sectors (employers)

G.17 Do the external examiners have the final say in whether or not the candidate passes ?

G.18 Do external examiners participate in the final evaluation of candidates in their final year of studies in undergraduate and postgraduate cycles ?

H Administrative Capacity.

H.1 What are the respective numbers of senior, intermediate and junior administrative staff in the various institutions and in the central administration ?
(Senior = above head of division; intermediate = head of division, section or service and their deputies, skilled secretarial, maintenance, social services and medical ancillary staff. Junior = secretarial, courier, semi-skilled or unskilled financial, maintenance, social services, medical, liaison staff, drivers etc)

List these as follows :

	Senior	Intermediate	Junior
Central Administration			
Institution # 1			
Institution # 2			
Institution # 3			
Institution # 4			
Institution # 5			
Total			

H.2 Characteristics of the senior staff

	Average Qualification	No. with formal admin. training	Admin. experience average in years.	Average age
Central Administration				
Institution # 1				
Institution # 2				
Institution # 3				
Institution # 4				
Institution # 5				
Total				

H.3 Do the administrative staff undergo continuing or periodic training (that is organised training courses) ?

H.4 Is there institutionalized systematic evaluation of administrative performance ? What form does this take ?

H.5 How regularly are planning and evaluation sessions held with :
- government employment organizations ?
- private employers and employment agencies ?
- international funding agencies ?
- foreign government aid agencies ?

H.6 Are major decisions of the Institutions made by :
- the central administration ?
- chief central administrator ?
- Institution head ?
- Institution board ?
- Government or other mechanism ?

(Major policy decisions are for example, policy on recruitment and advancement of teaching staff, creation of a new teaching programme, etc)

H.7 Are major policy decisions of the University made by:
- the most senior administrator alone ?
- the group of senior administrators (central and institutions)?
- the Government ?
- another organism such as the board of trustees ?

H.8 Are the major policy decisions made after a detailed cost analysis, and is the document presented to the decision maker or makers ?

H.9 Are appointments to senior staff positions made by a board, the Government, election from within the University ?

H.10 Is there regular evaluation of the administration by an outside Body ? How often and how is this done ?

I OUTPUTS & OUTCOMES

I.1 Mean Pass and failure rates in each institution over the last 5 years.

Institution	No. admitted over last 5 years (range)	Mean pass rate								Mean failure rate							
		Year	1	2	3	4	5	6	7	Year	1	2	3	4	5	6	7

I.2 Mean drop-out and repetition rates in each institution over the last 5 years.

Institution	No. admitted over last 5 years (range)	Mean Drop-out Rate								Mean Repetition Rate							
		Year	1	2	3	4	5	6	7	Year	1	2	3	4	5	6	7

I.3 Provide information on the following outcome indicators on graduates from courses in the various institutions in your University :

- admission to further studies (what %)
- performance in postgraduate programmes
- occupation (employment rate within one year of graduation)
- earning capacity in employment related to their field of training
- earning capacity in employment unrelated to their field of training

(Information should bear on each complete course or profession)

I.4 Do you have information on the performance of your graduates in their employment ? If yes, then :

- state source of information
- rate their performance by discipline and/or profession (G = good, S = satisfactory, U = unsatisfactory)

I.5 Fill in the data specified in the following chart

Institution	Degrees (diplomas) awarded	Planned cycle duration	Cycle cost (years)	Training cost of (a) per student	Training cost of (c) relative to (a) (b/a) x c	% Graduates proceeding to further studies
		(a)	(b)	(c)**	(d)	(e)
Inst. # 1						
Inst. # 2						
Inst. # 3						

Continuation of table.....

Institution	% graduates available for employ-ment	Mean time (yrs) taken by (f) to obtain employment relative to field of training	Mean annual monetary earnings	Time (yrs) required to earn equivalent of training cost (=d/h)	mean time (yrs) taken by rest of graduates to obtain other employment within 3 yrs of graduation
	(f)	(g)	(h)	(i)	(j)
Inst. # 1					
Inst. # 2					
Inst. # 3					

End of table.

Institution	% graduates in this category	Mean earning capacity per annum	Time (yrs) required to earn equivalent of training cost (=d/l)	% graduates unemployed after 3 years	Attrition cost (d/c or b/a)
	(k)	(l)	(m)	(n)	(o)
Inst. # 1					
Inst. # 2					
Inst. # 3					

APPENDIX 2

EXAMPLES OF MARKET-RELATED PROGRAMMES

1 Major economic sector - Agriculture
- Selective breeding
- Soil analysis
- Pests control/Ecology
- Plant and animal pathology
- Biotechnology, especially micro propagation.

(*All the above specializing by plant and animal type*)

2 Marketing
- Investments: feasibility studies and evaluation
- Banking
- Management (Corporate executive)

(*All the above incorporating the following disciplines: Economics, Business studies, Law, Psychology, Linguistics etc*)

3 Food processing and storage

4 Equipment maintenance and design
Appropriate Engineering Technology such as cassava processing machines, harvesters, sowing machines, tractors constructed from old trucks.

The International Centre for Insect Physiology and Ecology (ICIPE) at Nairobi, has gone some way toward establishing the sort of educational programme which is multipurpose, cost effective and relevant to development. First degree graduates enrol at ICIPE for research on crop pests and some human disease vectors control. The training and research have a strong multi disciplinary approach component, with optimal utilization of both field and laboratory facilities. In the case of crop pests, the research is targeted at the needs of limited resource farmers who, ultimately, are expected to exploit the results. Thus, post-graduate students from ICIPE are able to find gainful employment in the private agricultural sector, with Governments in their agricultural extension schemes, in research and in teaching institutions. This is not the case with post-graduate students in African universities or African students from European institutions whose research was undertaken on some exotic entomological subject of no direct relevance to the problems in the African environment.

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